AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

Reg. U. S. Pat. Off.

Volume 69 — Number 13

Contents

Automotive Industries is published every Saturday by

CHILTON COMPANY
Chestnut and 56th Streets, Philadelphia, Pa.

C. A. MUSSELMAN, President and General Manager
J. S. HILDRETH, Vice-Pres. and Director of Sales
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SUBSCRIPTION RATES: United States, United States Possessions, and all countries in the Postal Union, $1.00 per year; Canada and Foreign, $4.00 per year. Single Copies, 25c.

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Automotive Industries—The Automobile is a consolidation of the Automobile (monthly) and the Motor Review (weekly), May, 1902; Dealer and Repairman (monthly), October, 1903; the Automobile Magazine (monthly), July, 1907, and the Horseless Age (weekly), founded in 1895, May, 1918.

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AUTOMOTIVE INDUSTRIES

Vol. 69, No. 13 • THIRTY-FIFTH YEAR • September 23, 1933

Profits for Capital Assure Buying Power for Labor

Industrial Wages Have Paralleled Value of Output per Worker. Industrial Profits Have Provided Reserves for Lean Year Employment

by Don Blanchard
Editor, Automotive Industries

NEW impetus has been given to the economic theory that a major factor causing the depression was that capital and management had been fattening at the expense of labor with the result that mass purchasing power failed to keep pace with mass production. Despite the sketchy factual basis for this theory which seems to overlook, among other things, that both stockholders and managers are consumers, it has a popular appeal which makes it a factor to reckon with, particularly because of the human tendency to accept generalization based on scattered instances of labor exploitation and NRA's efforts to correct these exceptions are to be commended.

It is a theory, moreover, which appears to have administration acceptance, a fact which labor organizers may be expected to use effectively. In a recent speech at an Iowa Labor Day celebration, NRA Counsel Richberg said: "Many of the managers of our great enterprises would rather pay good wages than fat dividends. But they are hired by the investors to make money for them. They are compelled to operate upside down —to increase profits wherever possible instead of wages. . . . Managers of industry should be relieved of their present degrading task of employing human beings as tools to produce profits for capital."

A few days later, however, in an address before the Babson Institute it was management that was flayed. On this occasion, Mr.

Without the reserves which accumulated from industrial profits, what would be the economic condition of the country today?

If, in the good years, leading industrial organizations had not been able to provide for the lean years which followed, they would now be in the same position as the railroads which have had to borrow hundreds of millions from Uncle Sam.

Without industrial reserves, unemployment would have been calamitously increased.

Reserves come only out of profits.

Production Is Purchasing Power

The success or failure of the industrial codes will depend on whether or not the higher wage rates bring with them proportionately greater production measured both in terms of quantity and worth.

"The total that we all produce," says Leonard Ayres, "is all that there is to be divided among us."

Richberg said: "The opportunity for making enormous profits and getting millions of dollars for nothing, developed all too fast in the industrial era. If competitors could be outwitted, if consumers and employees could be deceived or coerced, it became all too easy to increase the management compensation for exchanging goods to such an extent that the producers, as consumers, would get back only a small part of the values they put into the exchange."

It is interesting to note, incidentally, that in Iowa investors were saddled with the blame while at the Babson meeting, it was the inordinate greed of management that was condemned.

About two years ago, the writer made an analysis of the earnings of about 10 leading car makers during the five-year period 1926-1930, to determine what relation they bore to the net worth of these companies. If he recalls the results of this investigation correctly, the average return for the group was about 15 per cent on capital and surplus. While this is substantially more than bare interest, it should not be overlooked that this result was obtained by companies which were successful enough at least to live through that period and, in most cases, to go on through the more trying years which followed. No deductions were made for companies which passed out during the period and according to a recent statement of Thomas J. Hay of the National Used Car Market Report, there were 42 companies that did go under. Obviously the losses of these companies as well as the profits of those not included in the group must be included to give a picture for the industry as a whole. If these additions were made, however, there is no doubt that there would be a substantial reduction in the earnings on invested capital.

Looking backward, however, it is a good thing that the earnings of these and other companies were large enough to carry most of them through the lean years that were to follow. If earnings had not been large enough to provide reserves for these lean years, the industry would be in the same position as the railroads which have had to borrow hundreds of millions from Uncle Sam to keep going.

During the post-war period, the railroads were limited to an interest return on capital of 5¾ per cent, which incidentally they never earned as a group, and the wages of their employees were maintained at war-time levels. Suppose all industry had been similarly limited as to earnings and wages so that it was unable to create reserves for bad times and consequently was forced to depend on Government loans for continued operation, what would the economic condition of the country be today? Bad as things are, it is a safe bet that conditions would be very much worse than they are.

Another interesting sidelight on the labor exploitation theory is provided by the accompanying chart prepared by Col. Leonard P. Ayres of the Cleveland Trust Co. It shows that over a period of more than 80 years industrial wages have paralleled value of output per worker. Particularly worthy of note is that the wage curve has been above the output line since 1921, which covers the period during which labor exploitation is alleged to have had catastrophic effects. Furthermore, during the war period when wages reached the highest level in the history of the country, the curve suggests that labor's rewards for its share in production were less in relation to production than in the years that followed.

Colonel Ayres comments follows in part:

"The new codes are being put into force and effect with all possible dispatch with the purpose of increasing the numbers of the employed workers, and the aggregate of their payrolls, to as great a degree as possible before the ap-

Government Too, Reflects Human Weakness

The quality of government like that of industrial leadership and management is a reflection of the balance between human frailties and human strength.

What is there in the history of government on which to base a confidence in its capacity for successful management of industry?

Capital Has Losses As Well As Gains

It is a part of human weakness to assume the accuracy of generalizations which are based on conspicuous but isolated and exceptional instances.

For a sound national viewpoint, failures must be counted with successes in calculating the actual returns from invested capital.

proach of winter. The avowed intent is to increase the mass purchasing power of the workers in the expectation that they will promptly spend the wages received, and that the resulting increases in the demand for goods will so expand the operations of industry and trade as to enable manufacturers and merchants to operate profitably.

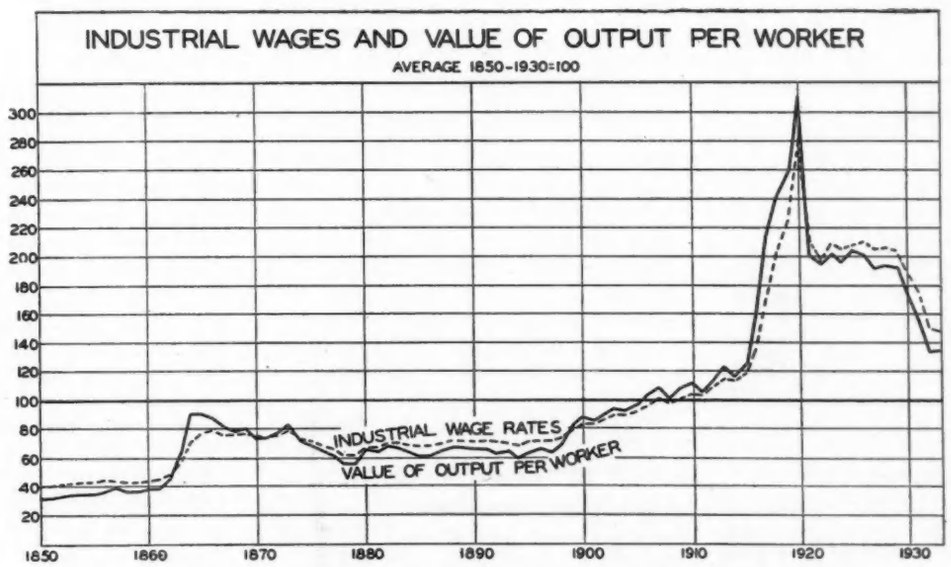
"In the long run there is just one test of the soundness of such a plan when the reductions in hours and the increases in payrolls are applied as these are to all forms of business activity. That test is whether or not they result in increased national production. The fundamental principle involved is that production is purchasing power. We all produce services or goods, and by using the money we receive for them we buy the goods and services of others. The total that we all produce is all that there is to be divided among us.

"It is possible to show from the records that over a long period of years in this country the prevailing industrial wage rates have varied in close relationship to the value of the goods produced per industrial worker. The diagram on this page shows such a comparison for the years from 1850 through 1933.

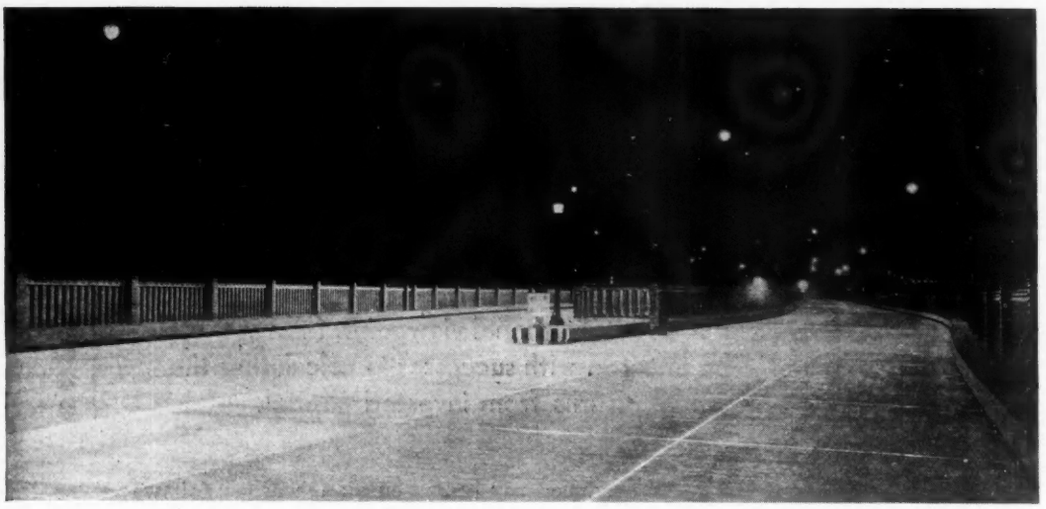
"The general lesson of the diagram is that in actual practice as well as in theory average wages per individual do in the long run vary in close relationship to average value of output per worker. It may safely be concluded that the codes will be successful only if the higher wage payments per hour of work are accompanied by proportionately greater increases in the volume and value of the goods and services produced. This will require greater production volume, and prompt price advances that must not however be so great as to curtail purchasing."

Another part of Mr. Richberg's Iowa address which seems worth quoting in connection with this discussion, was as follows: "The National Recovery Act . . . was written so as to make sure that if our industrial leaders should lack the will or the ability to discipline themselves, so that they might serve the general welfare, then the Government would not be left helpless to protect the great masses of the people from further suffering caused by the lack of adequate planning and direction of essential industries, and the absence of the necessary cooperation within and between such industries."

These seem to be days of free and frank criticism so perhaps it is not out of place for industry to inquire what reason there is to believe that Government could do a better job of planning and directing in view of its record in fields which have always been regarded as peculiarly its own — public finance and law enforcement?



This chart, prepared by Col. Leonard P. Ayres of the Cleveland Trust Co., is based on data which the colonel believes has no invalidating bias. The solid line shows changes in the value of industrial output per worker while the broken line reflects changes in industrial wage rates.



New Jersey super highway between Newark and Jersey City lighted by staggered lights placed 300 ft. apart on each side or 150 ft. in the centre

Lighted Highways Would Reduce Nigh

HIGHWAY lighting is one of the most important problems facing not only highway safety engineers but also automotive engineers, for it is obvious that automobile headlamps have many limitations which continue to make night driving hazardous. Darkness not only adds to every other highway hazard, but superimposes some of its own.

Ranking high among the added perils of night driving is the invisible pedestrian — invisible under certain conditions, in spite of good headlamps, until the automobile is so close to him that an accident is no longer avoidable.

By a series of after-dark tests upon a highway, lighting specialists have determined that pedestrians are almost invisible to motorists upon unlighted roads, even with automobile headlamps playing fully upon them, unless the pedestrians wear light colored clothes.

Three experiments were conducted, two of them with all highway lights extinguished. In the first a man in dark clothes stood about 100 feet in front of an automoble, the headlights of which were shining. The man could not be seen from the car, and in the ordinary course of events he would not be discovered by the motorist until the latter was so close to him that only a very sudden stop would prevent him from being run over unless he got out of the way.

Lighting cut accidents 42 per cent on one highway

In the second experiment a man wearing light-colored clothes and holding a white handkerchief stood at the same distance. The man's figure could be made out in plenty of time for the automobilist to avoid him, and the white handkerchief was particularly easy to pick out.

In the third experiment the highway lights were turned on and the pedestrian, wearing dark clothes, was vividly revealed in silhouette against the glow of lights.

The conclusion reached by the lighting specialists was that in only two ways can a motorist discern pedestrians upon highways at a distance after dark. They can be seen if they wear light-colored clothes, preferably all-white, or if the highway has adequate lights.

Since it is out of the question to expect that everyone who walks along the highways will dress in white, the only alternative is to light the roads properly. It is not sufficient to depend upon automobile headlights alone, according to this demonstration.

Pedestrians are not the only hazards encountered at night. Rain, particularly on dark pavements; unlighted trucks, trailers or automobiles parked along the road, maybe just beyond approaching headlamps of another automobile; accidental obstructions, unexpectedly sharp turns, broken pavements; and glaring headlamps of other cars—such are additional hazards, details about which it hardly seems necessary to dwell upon at this time.

Night driving without headlights at 70 miles an hour over the recently completely 3½-mile elevated steel viaduct on the state highway (Route 25) joining Newark, N. J., and Jersey City was one of the demonstrations to prove that safety at night is assured with the modern highway lighting system which was recently installed.

The express highway between Trenton and Jersey City was opened about two years ago, and its extremely high accident record has been a constant source of worry to state officials. Many of the daytime hazards were eliminated by wider pavements, white lines, traffic signals, and more effective signs; but a large portion of—and by far the most serious—accidents occurred at night.

The new lighting system on the 3½-mile viaduct section of this highway consists of approximately 200 series-type luminares rated 6,000 lumens and equipped with 11-inch bowl-type prismatic refractors, with rippled outer surface.

Silhouette of man in dark clothes 100 ft. from automobile is clearly visible with low headlights and street lights burning

gh Driving Hazards at Moderate Cost

by Dudley M. Diggs

Illuminating Engineering Laboratory, General Electric Co.

Each luminaire includes a refined focussing device affording precise adjustment of the lamp filament in the refractor. Thus the major portion of the light output is distributed on the road surface in such a way that illumination is highly uniform and glare is eliminated.

The lighting units are mounted on steel poles and eight-foot brackets. They are spaced 300 ft. apart on each side of the roadway, in staggered arrangement, or 150 ft. apart along the center line of the road. There are four lighting circuits, two from Jersey City and two from Newark. They are so arranged that two circuits would have to fail to produce complete darkness on any given strip of the roadway.

Accident statistics from the New York State Motor Vehicle Bureau show 1,159 fatal daytime accidents in 1927 and 1,262 in 1932, an increase of 11 per cent. There were 918 fatal night accidents in 1927, and 1,381 in 1932, an increase of 50 per cent. As traffic has increased in speed, and roads have become more heavily traveled, night accidents have increased out of proportion to day fatalities.

That lighting of the highways has more than counteracted such "natural" increases is shown by recent statistics for Bay Shore Boulevard, San Francisco, which registered a decrease of 42 per cent in the number of night accidents over a period of one year as compared with the previous year, when the highway was not illuminated. Day accidents over the same period decreased by only 2 per cent. It is declared that this three-mile stretch of highway, which is equipped with 10,000 lumen lighting units, has upheld the contention that proper street lighing is an investment in human safety.

Six miles of the Schenectady-Troy and Schenectady-Albany main highways were illuminated, and comparisons drawn between the two years preceding illumination and the two years following the installation of the lights.

In this case an increase of 13.1 per cent in daytime accidents and a decrease of 40 per cent in night accidents were shown after installation of highway lighting equipment.

The minimum recommended practice for installing highway lights is to use not less than 400 candlepower incandescent lamps in reflector or refractors designed to distribute the light output longitudinally along the highway rather than to spread it in all directions along the ground. The luminaires are usually mounted at a height of from 20 to 30 ft., on an arm extending 3 to 5 ft. over the highway, on poles between 200 and 250 ft. apart, either in staggered formation along the two sides of the highway or on poles on one side only. Such an installation based on these minimum recommendations gives on average light intensity of between 16 and 20 lumens of light per linear foot on the road surface, sufficient to show pedestrians and obstructions in silhouette, to overcome the menacing glare of approaching headlamps, and to make possible safe driving with depressed or lowered headlight beams.

It is difficult, when talking in generalities, to estimate the cost of a highway lighting installation, other than to say the cost is relatively small. Figures for some installations show that the whole annual cost, including installations, maintenance and current, is less than 3 per cent of the initial cost of the road. There are differences in costs, depending on whether or not pole lines are already available, what type of brackets and fixtures are selected, the cost of electric energy, and the local price of labor. In many localities, the cost of adequate highway lighting ranges from $1200 to $1500 per mile per year. These figures include amortization and maintenance charges.

The FORUM

Lee Oldfield says opinions, rather than facts govern, and describes device designed to give better performance than even expert driver can obtain with manual controls

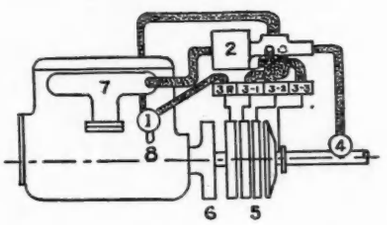


Fig. 1—Schematic drawing of Oldfield transmission control

Editor AUTOMOTIVE INDUSTRIES:

Consideration of the many statements made regarding the problems involved in the design and/or operation of automatic speed changing devices for automotive vehicles has caused the writer to wonder if the great majority of the problems cited as being difficult of solution are not more in the mental attitude of the designer than in the actual problem.

It is a fact, of course, that organizations now equipped with proven designs and tools for their manufacture are reluctant even to contemplate designs which differ from their present "Standard" to an extent that prevents the use of experience, tool equipment and materials now on hand; this condition has so influenced the minds of the really able men in these organizations that they feel that they can tell all the answers to any proposal quite readily, and there seems to be little disposition really to tear the problem apart and analyze it without regard to the mechanisms that may be found necessary to effect the results such an analysis might indicate as being desirable.

Transmission specialists speak easily of balancing the gearing and engine ability aganst the requirements of the vehicle so that optimum performance may be secured by a really expert driver, and appear to be uniformly convinced that no scheme not involving manual control and driver intelligence can possibly obtain as good performance as the present scheme. The writer believes that he can qualify as an expert driver, having studied performance curves, gear ratios, time elements, etc., etc., in connection with hill climbs as much as twenty years ago, and it is his opinion that the many developments in transmission and clutch designs, which have made gear changing so much easier for the inexpert driver, have made no difference in the time element involved in gear changing for the really expert driver and, as this time element involves deceleration when acceleration is desired, the predicted optimum performance is never accomplished, even by the expert, with manual control.

It has been said that "a problem clearly stated is half solved" and, when the ingenuity of designers in discovering means for accomplishing desired results is appreciated, there does not appear to be much justification for thinking that adequate solutions for transmission problems will not be forthcoming whenever the desideratum is clearly stated.

S. O. White, chief engineer, Warner Gear Co., has quoted a prominent executive to the effect that "a satisfactory automatic transmission is one that operates smoothly, quietly, without effort or skill on the part of the driver, and does the right thing at the

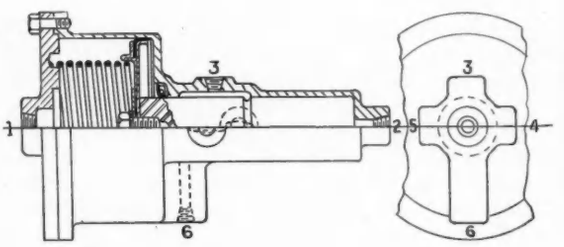


Fig. 2—Oldfield transmission controller in half-section

Negative Thinking Blocking the Automatic Transmission

right time." The writer believes this to be a very clear statement and sees no reason why the problem should not be easily solved if a start were made from such a basis. The fact is that there appears to be little real disposition to go at it in this manner. Opinions, rather than facts, seem to govern most of the work with which the writer is familiar, and ideas and devices offered for consideration are examined almost entirely from a negative point of view, if at all, and the ever-present demand for incorporating the existing experience, designs and materials most certainly does not simplify the problem.

Herewith is submitted data describing a means for controlling speed changing mechanisms which, it is believed, is entirely practicable and can be so designed as to produce the result desired, as stated above. It is not definitely known whether the scheme described is new, nor is it suggested that this is either the only or the best means possible for accomplishing the desired result; but criticism to date has not disclosed any condition under which the scheme might reasonably be expected to fail to produce a better vehicle performance than even the most expert driver could obtain with manual controls and an otherwise similar vehicle.

LEE OLDFIELD,
Consulting Engineer.

Fig. 1 herewith is a schematic drawing of the Oldfield transmission control. 1 is the master control valve; 2, the controller; 3-R, 3-1, 3-2, 3-3 are the operating cylinders; 4 is the governor; 5, the transmission; 6, the automatic clutch; 7, the inlet manifold, and 8, the connection to the engine oiling system.

The operator selects "forward", "neutral", or "reverse" by means of the master control valve. The controller selects and changes the transmission ratios in accordance with the demands of the operator as indicated by the inlet manifold vacuum and the transmission-driven governor. The operating cylinders function in accordance with the selections made by the controller, and engage and disengage the clutches or brakes of the transmission.

The governor, driven by the output shaft of the transmission, delivers power to the controller in direct proportion to the vehicle speed. This is one of the two variable factors which affect the selection made by the controller. The transmission must be of a type which permits of changing gears while under load, by means of clutches or brakes. The automatic clutch must be of a design permitting controlled slippage when the normal engine torque is exceeded, so as to prevent shock loads from being transmitted to the vehicle. Vacuum in the inlet manifold is the second variable factor affecting the selection made by the controller. Power for actuating the operating cylinders is derived from the lubricating system of the engine.

Fig. 2 shows the Oldfield transmission controller in half section. 1 is the connection of the vacuum line to the inlet manifold; 2, pressure line from transmission governor; 3, pressure line from engine oiling system; 4, pressure line to low-speed operating cylinder; 5, pressure line to second-speed operating cylinder; 6, pressure line to high-speed operating cylinder. The drawing shows the piston in the position it assumes with the vehicle and engine at rest, or with the master control valve in "neutral."

Operation of this transmission control system is made plain by a chart, the construction of which is based on the following seven assumptions:

1. The condition and performance of an engine are accurately indicated at all times by the vacuum in the inlet manifold.

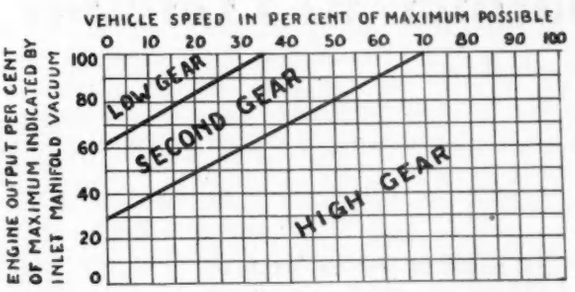


Fig. 3—Transmission control chart

2. When a gear-type fluid pump is operated against a blind outlet, the pressure rise in the delivery side of the pump will be in direct proportion to the pump speed.

3. The maximum speed at which the engine will run when driving the car in high gear should be available for acceleration in first and second gears, but should never be exceeded.

4. Low gear should give about 35 per cent the speed of direct drive,

and intermediate gear about 70 per cent the speed of direct drive, for a given engine speed.

5. An hydraulic system of control is the simplest for most cases, because of its flexibility.

6. The controller must be sufficiently large and powerful to assure rapid and accurate response to the controlling conditions and to operate the speed-changing mechanism mechanically, if such operation should be desired.

7. Adequate provision is made in either the clutch or the transmission for smoothing out the shocks resulting from changing gear while under load.

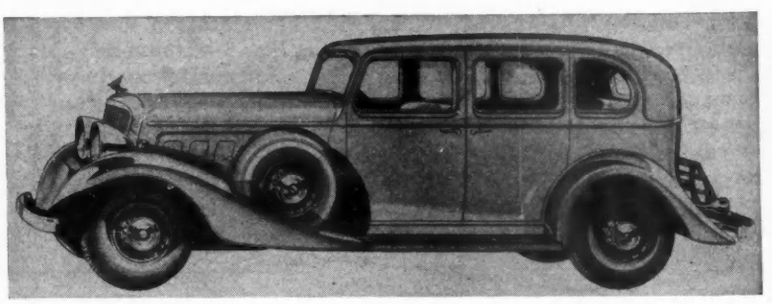
Assumptions 3, 4, and 5 are arbitrary; the assumed conditions may be changed as desired and the actual mechanism designed to suit any combination of values either assumed or determined experimentally. The reason for assumption 6 is that it is desirable to use a single design of controller for all sizes of engines and transmissions and all probable methods of operation.

Assumption 7 is based on the thought that the scheme involved is of greatest value in combination with either a planetary or an individual-clutch type of transmission, with either of which it is possible to provide the desired slippage in the transmission mechanism. A better means, and one not involving mechanical friction might be the use of a master clutch of the hydraulic type. Such a clutch is simple in design and inexpensive to manufacture. Its design provides for inherent balance, both mechanical and hydraulic, and includes provision for controlled slippage whenever the input torque exceeds a predetermined value. An assembly including a suitable transmission, the Oldfield transmission control and the Oldfield hydraulic clutch would not transmit any shock to the mechanism back of the transmission under any conditions.

Controller dimensions can be determined in a preliminary way by assuming that the inlet vacuum varies from zero at full throttle to 11 lb. per sq. in. at closed throttle in a straight-line relation. It is also assumed that the vehicle speed is directly proportional to the throttle opening and that the governor pressure varies in direct proportion to the vehicle speed.

The gear-control chart shown in Fig. 3 is based on a vacuum-type controller with a piston-head area of 44.4 sq. in. subjected to inlet-manifold vacuum, and 4.4 sq. in. subjected to pressure from the hydraulic governor driven by the output shaft of the transmission. The forces due to these fluid pressure are opposed by a spring having a rate of 100 lb. per inch and an initial compression of 100 lb. These forces are purposely chosen high, in order that the device may have adequate power to perform its duties. With the values assumed, a change in gear ratio will be effected when the forces due to the vacuum in the inlet manifold and to the transmission-driven governor reach the predetermined values shown by the inclined lines on the chart. Each field of the chart corresponds to the gear indicated.

New Airman Body Styles Similar to Franklin Twelve



The new Franklin Airman is streamlined to offer a minimum of wind resistance

ONE model of the new Franklin Airman line which carries new bodies similar to those fitted to the Franklin twelve-cylinder chassis, is shown in the accompanying illustration. The "mock" radiator shell is sloped to blend with the built-in windshield, and the hood is carried back over the cowl to increase the appearance of length. Rear-quarter and back panels are worked into a broad, sweeping curve which extends over the fuel tank. Fenders with skirts and with contours that envelope the wheels conceal the understructure.

The doors now extend well below the floor line and running-board aprons have been virtually eliminated. The inner wings of the front fenders meet the splasher underneath the hood front in such a way as to emphasize the V effect of the front end. An ornament in the form of an airplane is mounted over the tip of the Vee.

Interior and exterior hardware is identical with that used on the Twelve, both in shape and finish. Instruments with airplane-type dials are assembled on the instrument panel, and the controls include Startix.

Two synchronized horns are mounted under the hood. The battery is now placed beneath the floor boards. Newly designed tire carriers provided for fender mounting and rear mounting of the spare. Nonshatterable glass is standard for all windows and windshields.

JUST AMONG OURSELVES

Times Change But On the Other Hand—

HUMORIST H. I. PHILIPS in his Sun Dial column the other day included in a list of "Vanishing Americans" which began with "the fellow whose business was so good he ran it by cablegram from the Riviera," the following:

"The man who could maintain two sixteen-cylinder limousines for his family's use without that guilty feeling."

"The wife who insisted that she have her own car and a small runabout for Junior to uphold the family position in society."

"The automobilist who said: 'Fill her up' at the gas station and didn't bother to ask how much per gallon."

It isn't fair, of course, to take a humorist seriously, but Mr. Philips, along with Ring Lardner makes so many truly pertinent stabs at current foibles that he has earned himself the right to be taken quite seriously at times. Perhaps this isn't one of the times, but we think Mr. Philips is nearer wrong than right in his selection of automobile representatives in his list of Vanishing Americans.

Plenty of men in America—if they have the money—will be able to maintain two sixteen-cylinder cars without a guilty feeling. It's too bad, in fact, that they ever got that guilty feeling; fewer men would have been out of work during the depression if they had bought three or four expensive cars.

We hope he's right about the social climber wife, but we don't think so. And as for the "Fill-'er-up" fellow—why he'll be back just as big as life six months after everybody is sure that the depression really has ended for keeps!

* * *

There Must Be a Limit

THE will to try to perform engineering and production miracles without benefit of money finally seems to have left the hearts of a great many automotive engineers and manufacturing men. Three years of depression has taken its toll. Once the attempt to build perfection at low cost involved for most engineers a certain challenging inspiration. Recently we've heard more talk among technicians than ever we can remember about the need for some reasonable sums of money to be spent if the products they design and build are to record progress each year.

The age-long fight between belief in the selling power of price as against belief in the sales potency of peformance—using the latter term in its broadest sense—seems destined to be fought even more bitterly in the next few years than in the past. "Give me $3 per car and tell me I could do anything I liked to improve the job," said one engineer recently, "and I wouldn't know what to do with it all." Yet known imperfections of detail continue in more than one automobile design for lack of expenditure of much less than $3 per car—at least that is the impression we get from a rather widespread lot of informal conversations recently.

Management gets the blame, of course—often unjustly, because management cannot spend that which it doesn't have. Just the same automobiles can't go on forever getting both better and cheaper, can they?

* * *

Where Will It Lead?

IT would seem to be unfortunate if NRA codes develop approved provisions which might put a premium on inefficiency or protect the weak business against the strong ones in such a way as to destroy initiative.

This thought is brought to mind by reading the following paragraph from the code of fair competition filed by the National Association of Commercial Vehicle Body Manufacturers which, unless we misread its intent, might have some such effect:

"On and after the effective date," this paragraph runs, "and until all existing commercial vehicle body plants are running to full capacity, there may be no new commercial vehicle body plants or businesses founded, formed or established, except by special permit of the Administration."

Apparently the intent of this paragraph is that, if one plant gets more business than another through greater efficiency and, as a result gets more business than it can handle, it can't increase its plant facilities to take care of that additional business until such time as the least efficient plant in the industry is operating at full capacity.

We don't know the exact status of this particular code as we write, but it will be interesting to review later any discussion which might arise of this particular provision.—N.G.S.

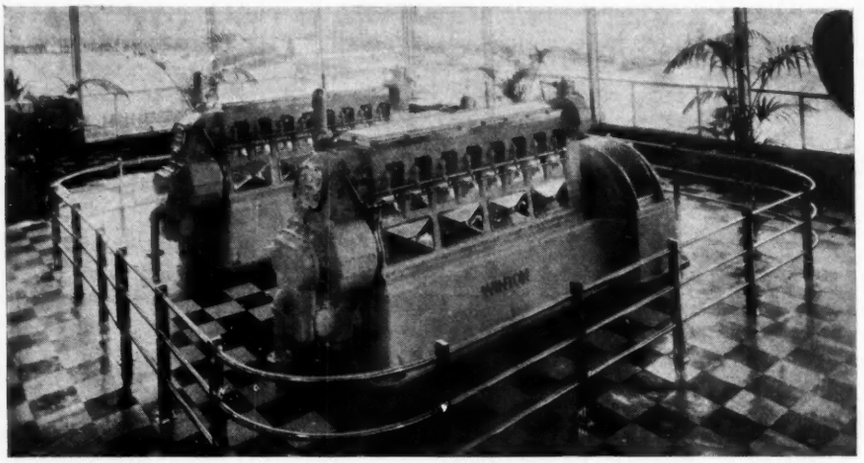


Fig. 2—Two Winton 600-hp. two-cycle Diesel engines at Century of Progress

Welded S

by Everett Chapman*

Vice-President in Charge of Engineering
Lukenweld, Inc., Division of
Lukens Steel Co.

ONE of the factors which has prevented the Diesel engine from assuming its rightful place as an important prime mover in transportation units has been its excessive weight. Many successful applications have been made in marine and railroad yard service, but such possible and likely applications as main-line passenger and freight service have remained relatively untouched.

A great deal of the weight of the Diesel engine is in the crankcase. High combustion pressures in combination with large piston diameters result in loads of large magnitude. The strict requirement of structural rigidity, coupled with the repetitive nature of the load, demands that the usual cast material be worked at low stresses, which results in excessive weight figures. Many attempts, accompanied by a few successful results, have been made to execute the light-weight Diesel crankcase in cast steel. That material, however, will not flow in sections as thin as cast iron, and this prevents any appreciable weight reduction.

The only alternative then is the use of rolled steel in the form of plates and shapes to build up the desired structure. For joining the components, riveting is out of the question, because riveted joints would not stand up under the loads to which they would be subjected; but welding is eminently suited to the purpose. Questions that may be asked on the application of welding to Diesel engine blocks center about two prime requisites, stiffness and endurance life, plus a secondary factor — corrosion resistance—which affects only those marine installations where salt water is used as a cooling medium.

Questions concerning structural rigidity are answered by the fact that steel is the stiffest commercial material known to man. Further, the flexibility of the welding process enables the designer to use economical, efficient sections that have been impractical in other manufacturing methods. Thus, the matter of requisite rigidity is controlled entirely by the designing department.

The problem of endurance can be rather simply stated, though the subject as a whole is somewhat involved. The essence of the matter is that the stress range through which the component materials can be carried indefinitely without causing failure must be known. The maximum stress in the structure, wherever it occurs, must be below the known safe value.

A low-carbon alloy steel which has been found most applicable to welded steel crankcases has an endurance limit—as determined on a rotating-beam machine—of 50,000 lb. per sq. in., as compared with 30,000 for ordinary mild steel plate.

Other points to be considered are the condition of the weld, the endurance value of the weld metal, and the damage to the base metal by the high temperature of the welding operation. Welded joints, as a rule, do not break through the weld, but adjacent to the weld. This condition is corrected by heat treatment of the welded structure after completion of all welding. The discontinuity in the physical properties at the fusion zone is thus eliminated. Heat treatment after welding is necessary also to remove the residual stresses which are locked up in the structure.

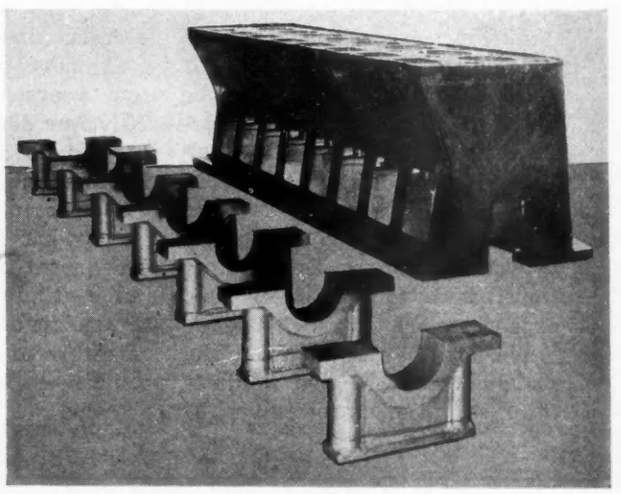


Fig. 1 — Welded steel block of a 500-hp. four-cycle marine engine

*Abstract of paper presented at the meeting of the A.S.M.E. Oil and Gas Power Division in Atlantic City.

Steel Crankcases Reduce Diesel Engine Weight

Provide rigid, durable structures with a maximum of material contributing to strength

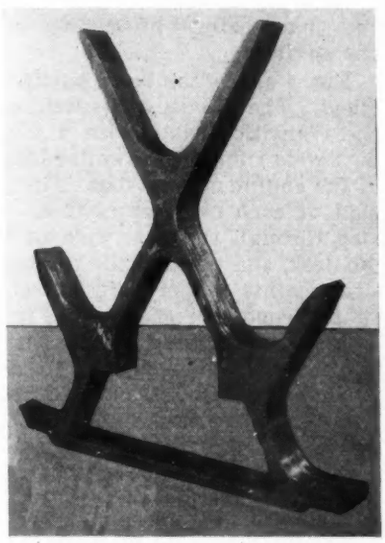


Fig. 3—Flame-cut main-frame member of 1000-hp. engine block

An unannealed welded structure will exhibit unseasoned properties worse than the greenest casting ever encountered. It will warp and twist on the planer and boring mill to a degree that will render the structure useless. It will not hold its shape over any period of time. Instances have been known of unannealed welded structures which, over a period of two years, crept badly out of shape in service. A multiplication of difficulties occurs at the edge of the weld where the metallurgical damage coincides with the severe discontinuities in weld contours. Undercutting is quite common with many electrodes in the hands of an inexperienced welder. With an undercut and its attendant stress concentration occurring just at this damaged zone in the parent metal, failure under repeated stress is imminent and certain.

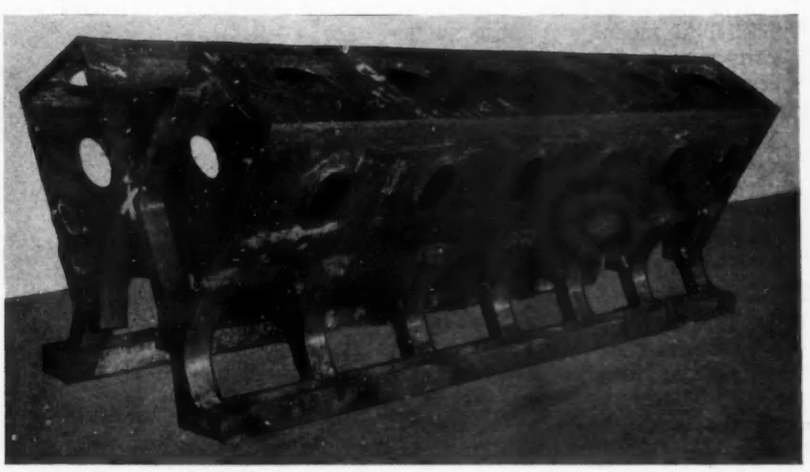
As regards corrosion resistance of weldable materials, the remarkable record of wrought-iron hulls in salt water could be duplicated in the water jacket of a welded-steel engine block. The stainless steels, nickel-clad steel and other "clad" metals are all possibilities.

Fig. 1 shows the engine block of a 500 hp. four-cycle marine engine with its welded bearing girders. These early blocks were of tie-rod construction, the welded steel serving as a stabilizing medium for the tie rods. It is a misconception that the tie rods take all the load. The rods, if they are screwed up and set properly by means of strain gages, bring into play the rigidity of the crankcase and it is just as important to prevent stress concentration in this case as in a structure in which all of the gas-pressure load is taken by a weld.

The engine shown in Fig. 1 was built of low-carbon, welding-quality steel with an endurance limit of 30,000 lb. per sq. in. The weld metal used to join the components had an endurance limit of 28,000 lb. per sq. in., established by rotating-beam test on all-weld metal specimens. It was then a matter of eliminating all undercuts, unfused welded joints, and surface discontinuities of any type, since it is easy, at an average stress of 5000 lb. per sq. in., to incorporate a stress-concentration factor of 5 or 6, which would prevent indefinite service life. The block weighs about 5 lb. per hp.

Fig. 2 shows an installation of the same general type of crankcase with the exception that the engine is two-cycle and slight modifications were made in the block to take care of this feature. These engines form part of the Winton

Fig. 4—Block of V engine partly welded up



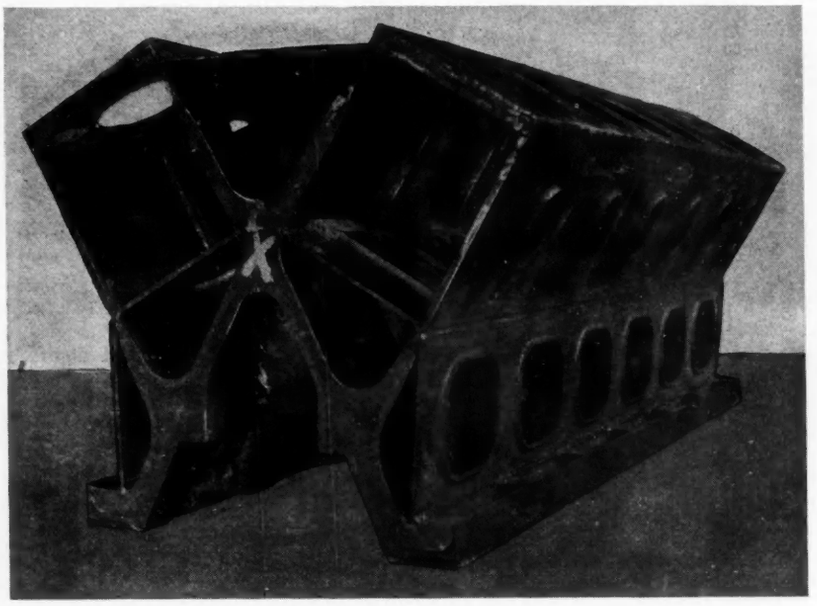


Fig. 5—The V-engine block in a more advanced stage

Engine Corporation's exhibit at the Century of Progress in Chicago, and have been in continuous operation since the opening of the fair, supplying power and light to the entire General Motors Building there. This installation, including generator and sub-base, has a specific weight of 39 lb. per hp., that of the engine alone being 20 lb. per hp.

To eliminate still more weight in steel crankcases, the construction of a case was initiated, in which the gas and inertia loads were carried entirely by the welded structure. With the tie-rod type of construction, much material is not working effectively, especially if the tie rods are not set properly. In a completely welded unit, better distribution of the stress can be achieved because of the "monolithic" construction. An experimental single-cylinder frame was built, embodying a main frame flame-cut from a plate of steel 2 in. thick. This model was subjected to strain-gage tests to determine the efficacy of the conception. The main frame was joined by welding to the top deck, into which the cylinder head studs were tapped. This frame showed satisfactory deflection and stress characteristics.

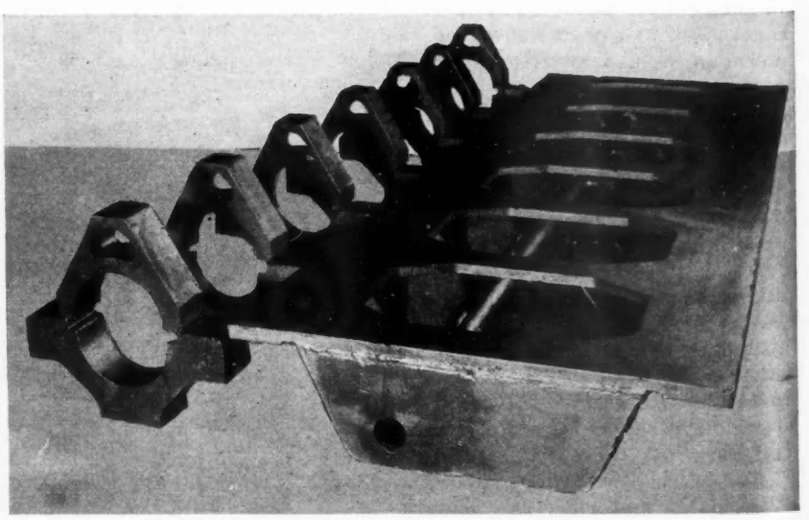
An effective method of determining points of maximum stress in a three-dimensional structure is to paint it with a varnish possessing a low modulus of elasticity and a low yield point. When a static load is applied to the structure, the varnish cracks at the point of maximum stress while the structure is only lightly loaded. The varnish method shows points of maximum stress with a single application of a load, and the load at which the varnish cracks correlates a wealth of information about stress factors and fatigue performance. The varnish, of course, will crack first at points where experience dictates the use of a large radius, it will crack at the contours of an improper weld, and at the root of an undercut.

Based upon this experiment, construction was undertaken of a 1000 hp. twin-six engine, in which the entire gas load was carried by the welds. Fig. 3 shows the type of flame-cut main frame which was used. This frame transmits the gas load of one bank of cylinders past the gas load of the other bank of cylinders, and into the main bearings. The minimum-weight design is one in which the material is loaded in straight tension. The flexibility of flame-cut steel plate in meeting this ideal condition is well illustrated by the frame member of Fig. 3. The stub ends of the frame could not be run through to the top deck because the stagger of the connecting rods produced a 3-inch offset in each cylinder with respect to the cylinder in the other bank, which necessitated the use of a transition joint. Since the transition joint had a peculiar shape, more experimental work was done to determine an efficient design for the joint before proceeding with the engine.

Fig. 4 shows the block partly finished. The top deck was welded to the transition plate with a single butt weld running the entire length of the engine on each side. The gas load of each cylinder is then carried through the butt weld at the top deck, and through the two transition joints to the main bearings. In the condition shown in Fig. 4 each weld, including the transition joints, was radiographed to discover any imperfections, unfused joints, or porosity that might have existed. The crankcase was also thoroughly inspected for undercuts and surface discontinuities. In the construction of two of these crankcases, it was not necessary to chip and re-weld any of the joints.

Fig. 5 shows a further stage in the progress of the block. The inner deck, which carries the lower end of the cylinder liner, is in place. The side plates and stiffen-

Fig. 6—Main-bearing caps and oil pan



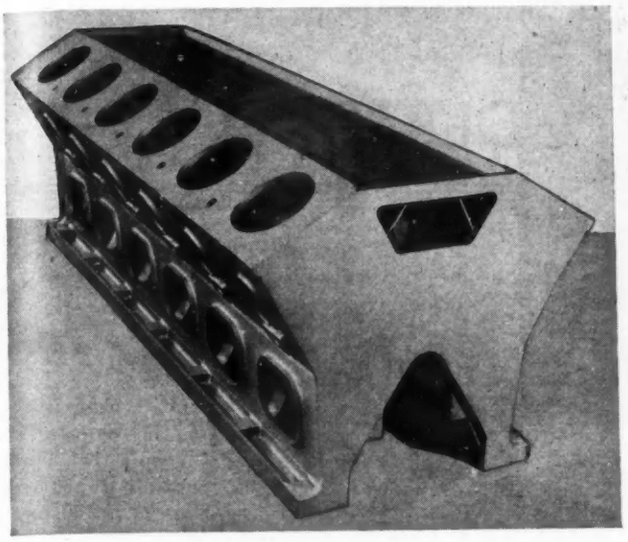


Fig. 7 — Completely welded block of twin-six engine

ing ribs have been added. The hand holes providing access to the connecting rod caps and the hand holes for inspecting the piston rings have been flanged in the side plate itself. In welded steel construction, there is a tendency to use thin sections, because of the strength of the material. It is necessary to guard against unsupported areas of any magnitude in thin material, when the mechanism is one which may set such areas in resonant vibration. The flued hand holes stiffen the thin plates admirably. Fig. 6 shows the main bearing caps and oil pan. The main bearing girders are flame-cut from 4 in. steel plate. The oil pan was constructed as shown to provide a tie for the bottom legs of the main frame members.

Fig. 7 shows the completed block as it left the weld shop. Built in the high-strength, welding-quality alloy steel, this block has a weight of about 2.6 lb. per hp. The entire engine weighs less than 10 lb. per hp., running on the test block. Calculations based on the indicator card show that each weld in this structure is subjected to an impact load of 38,000 lb. The performance of this engine offers conclusive proof that welded joints can be designed and made commercially to sustain the most severe loads encountered in modern mechanical practice.

A welded steel Diesel engine crankcase is shown in Fig. 8. It is for a ten-cylinder 600 hp. radial engine and is constructed of the same base material as that used for the block of the twin-six engine. All-weld metal specimens deposited with the alloy electrode used to fabricate this case and the twin-six block have a yield point of 65,000 lb. per sq. in., an ultimate strength of 95,000 lb. per sq. in., and an elongation of 24 per cent in 2 in. Here again the main loads are carried by a weld.

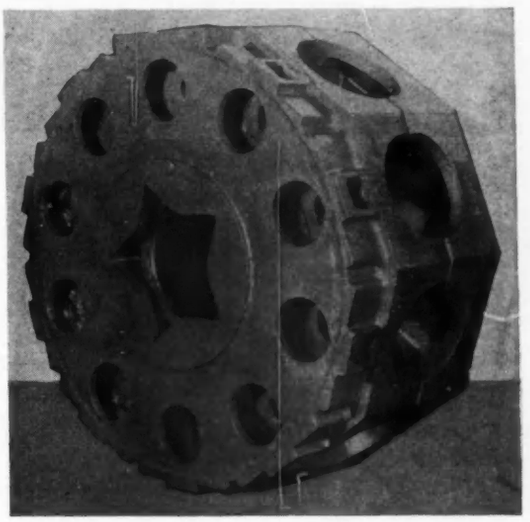


Fig. 8 — Welded steel crankcase for radial engine

Steel castings are used to form the periphery of the cam pocket. The contours around the push rod guide bushing and the bolts tying the two halves of the engine together were sufficiently intricate to dictate the use of a steel casting. The parts were cast in units of one per cylinder, and the entire casting assembly welded into one ring, which was inspected and machined before welding it into the rest of the assembly. In an application such as this, it is essential that the carbon content of steel castings be maintained below .20, and that the castings be of the finest grade obtainable. For use in welded steel assemblies, electric furnace castings are highly desirable, because of the close control over both pouring temperature and analysis. The small amount of dissolved gases present offers favorable welding characteristics.

The weight of the radial engine crankcase is less than 1 lb. per hp.

Symposium on Motor Lubricants

Symposium on Motor Lubricants, published by the American Society for Testing Materials, 1315 Spruce Street, Philadelphia.

This publication contains seven papers which were contributed to the symposium on motor lubrication held jointly by the American Society for Testing Materials and the Metroplitan Section of the Society of Automotive Engineers in New York on March 8 last. The papers included are as follows:

Carbon Deposits in Gasoline Engines, by W. A. Gruse, Mellon Institute of Industrial Research.

Present Concepts of the Relation of A.S.T.M. Pour Test to Service Requirements of Oils, by J. L. McCloud, Ford Motor Co.

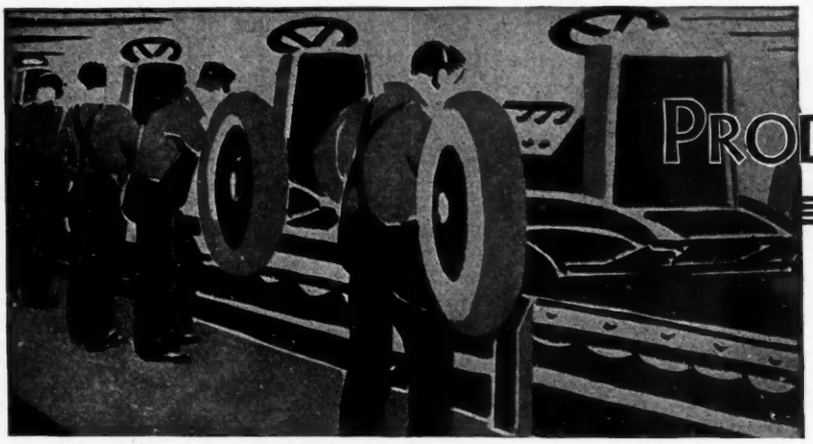
Viscosity of Automobile Crankcase Oils as Related to Service Requirements, by E. W. Upham, Chrysler Motor Co.

Service Changes in Crankcase Lubricating Oils, by A. M. Dietrich, University of Ohio.

Oil Consumption in Motor Car Engines, by W. H. Graves, Packard Motor Car Co.

Factors in Engine Design Which Affect Oil Performance, by A. Ludlow Clayden, Sun Oil Co.

Many of the problems discussed in the symposium are controversial ones and participation in the discussion of outstanding technologists in the petroleum and automobile industries resulted in a general advancement toward agreement on some of the problems.



PRODUCTION LINES

Startling But True

Alloy cast irons now have IT—with the aid of the electric furnace. Some months back we told the story of Essex camshaft of alloy cast iron. And Hudson is not the only maker using it. What of the electric furnace alloy cast crankshaft? We have reason to believe that many important engine builders already have put it through its paces with great success. Although the public may not be ready for the announcement engineers are not overlooking any bets.

Big Success

S. A. E. headquarters sprang a big surprise in staging an automotive display at the Palmer House. We don't know how you felt about it, but we got a bigger kick out of the display than we did from the World's Fair. It was well done and the Society as well as those participating are to be congratulated. Cleveland Graphite Bronze, Spicer, Weidenhoff, and others put on a fine show. Campbell, Wyant & Cannon made a hit with us by their display of electric furnace craft. There were cast camshafts. Also an interesting assortment of cast alloy iron crankshafts. One of the latter was out of a well-known engine that had traveled some 50,000 miles.

Pure Science

Cards are so stacked against the gear maker that he's up against things quite beyond his control. Acoustics — that wondrous scientific ingredient, is the biggest hurdle. You can build a reasonably silent transmission—it may be quiet when installed in one chassis; but it may be noisy when installed in another make or model. The difference lies in the fact that certain body forms or dimensions or chassis layout may reinforce frequencies below the audible range and make them important. It's the same effect that you get by mounting a tuning fork on a sound box. Thus what's quiet on the test stand may be a howler in the car. The answer seems to lie either in a final test when in the chassis or a test set-up simulating those conditions.

Semi-automatic die casting machine, by Madison-Kipp, recently announced in Automotive Industries which will be turning out castings at the National Metal Exposition at Detroit next month. To add to the interest, the machine will run with the new high purity zinc alloy that has given die casting technique a new slant.

Upturn?

A spirit of optimism is afoot. For the first time in a long while we met oodles of people with happy smiles on their faces. They told us about the new things in the offing and others seemed to be ready to give them a trial. Whatever forces are at work, the psychological forces that dispel the clouds of depression seem to have gained power and momentum.

Road Racing

We were one of the fortunates to see the revival of the historic Elgin road race. Judging by the crowd, Americans are just as interested in stock car competition as are our brothers across the sea. As we told you in *Automotive Industries*, the Ford V-8's hung up a great record. Everybody felt it was just too bad that there were so few entries because the stock car race was really a dramatic event and could have been made so much more exciting by staging a struggle between more of the popular makes. Whether or not there will be another race soon depends upon the success at the box office. If there is another race, let's have more entries, more makes, and maybe a shorter course.—J. G.

MANUFACTURING MANAGEMENT METALLURGY

New Borg & Beck Clutch Developed for Use With Vacuum Controls

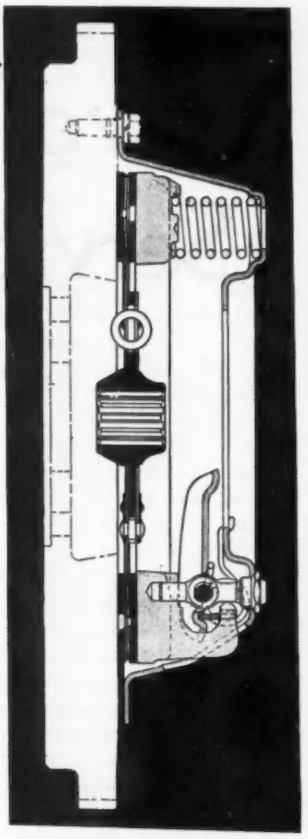
Rolling or knife-edge type contacts give long life without lubrication

PLAIN bearings and sliding contacts have been in general use in the release mechanism of single-plate clutches for many years, and they were quite satisfactory in service until the advent of vacuum clutch controls. With such controls, the frequency of clutch releases and engagements is greatly increased, with the result that objectionable wear occurs and an increase in friction of the operating mechanism becomes noticeable after several thousand miles.

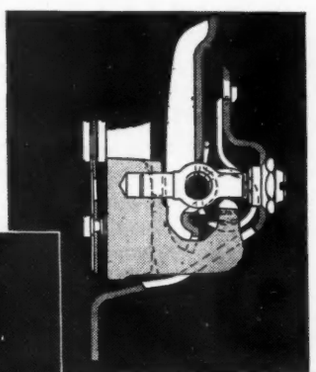
To meet this condition, the Borg & Beck Company has brought out its Type A3 clutch, of which illustrations are shown herewith. In a first attempt to overcome the difficulty, needle bearings were used, but the lubrication of these bearings proved to be quite difficult and the additional cost was another objectionable feature. Type A3 clutch therefore was designed with a view to obtaining low friction without the use of anti-friction bearings, obviating the need for lubrication, and retaining the low-cost advantage of plain-bearing construction.

Type A3 clutch is similar in appearance and identical in installation dimensions with the well known A1 type, but the release lever fulcrum pin, instead of being fixed in the eye-bolt and rotating in the socket of the lever, is stationary in the lever and rolls across a short flat portion of the enlarged hole in the eye-bolt. At the outer end of the release lever, instead of the former sliding contact between the lever and hooked portion of the pressure plate, a strut, having rounded edges, is interposed and in operation one of these rounded edges rolls across the flat portion of the pressure plate hook, while the other rolls within a groove near the outer end of the release lever, the radius of the groove being somewhat larger than that of the strut. All contacts are thus of the rolling, or knife-edge type, which have been used so successfully in weighing scales, and since there are no sliding contacts nor closely fitting or confined parts there is no need for lubrication.

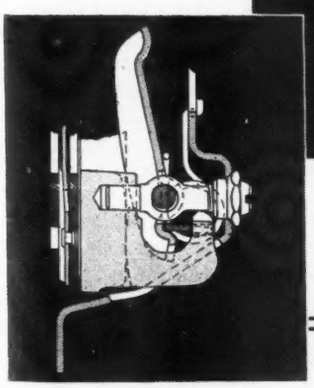
Life tests of this new design indicate that after two million engagements there is no appreciable wear, and that the pressure required to operate the clutch is not increased. The thickness and rigidity of the chrome-nickel iron pressure plate has been further increased. The resulting additional heat capacity, together with additional ventilation facilities and the use of improved friction material in the full-contact, cushion-driven plate, has increased the capacity of each of the three szes (9-in., 10-in., and 11-in.) to an appreciable extent.



Section of Borg & Beck Type A3 clutch



Clutch lever in "engaged" position



Clutch lever in "disengaged" position. (Note rolling motion of fulcrum pin

Two New Air-Cooled Sixes f Service Developed by Domana

Complete line of power plants from 4 to 12 cylinders and with displacements ranging from 48 to 754 cu. in., is also being designed

by P. M. Heldt
Engineering Editor,
Automotive Industries

DOMAN & MARKS, Syracuse, N. Y., who are developing a series of air-cooled engines for the compressor, truck and tractor fields, have issued illustrations and specifications of the first two—six-cylinder models of 4 by 5, and 3⅝ by 5 in. cylinder dimensions. The former has a displacement of 377 and the latter of 309 cu. in. Both engines peak at 2650 r.p.m., the former developing 104 and the latter 84 h.p. Among the advantages claimed for these engines are freedom from cooling-system troubles and a saving in weight due to the absence of cooling water. The engines also offer advantages for use in districts where water is scarce and where it boils at low temperatures, as at high altitudes.

Cylinders are individual castings of chrome-nickel iron which are provided with cast-on cooling fins all the way down to the crankcase. The cooling fins are ½ in. shorter on the blast side than on the opposite side, which tends to equalize the temperature of the cylinder wall and to make cylinder expansion uniform all around.

Cylinder heads, which contain the valve seats, are cast of British Y aluminum alloy and have removable valve seats of Ni-Resist shrunk in. Ni-Resist is a high nickel alloy of iron which has approximately the same coefficient of heat expansion as the Y alloy, so that there is no danger of the seats coming loose in service owing to higher expansion of the aluminum. Spark-plug bushings of bronze are inserted in the aluminum casting to assure durability of the threads.

Valve ports are so located as to assure radiation surface and air flow between them. A compression ratio of 4.9 is standard, but the engines can be furnished with higher compression ratios if desired. To prevent cylinder heads from coming loose in service, they are screwed onto the barels at a temperature of 550 deg. F., which is well above the highest temperature reached in service. Valves can be removed without removing the head from the cylinder, and it is claimed that on account of the accessibility of the parts which allow cylinder removal, a carbon-and-valve job requires only about the same time as with a block engine of the same size. Moreover, owing to the durability of the valve seats, valve grinding will hardly be necessary in less than 30,000 miles. The valve guides are made of Ni-Resist iron, to effectively withstand the heat of the exhaust. Valve rockers are steel forgings designed for lightness and rigidity. They are provided with bronze bushings riding on hardened and ground steel pins which in turn are supported on aluminum uprights integral with the cylinder-head casting. Dual valve springs are used.

Cooling air is supplied by a large centrifugal blower driven directly from the crankshaft. One stream is directed against the cylinder heads and another, separate stream against the cylinders, to prevent eddying. The blower delivers 4500 cu. ft. of air at 2500 r.p.m. crankshaft speed and proportionally more or less at other speeds. Its power consumption varies as the cube of the speed and amounts to 3.35 h.p. at 2500 r.p.m.

A Stromberg EX downdraft carburetor is used, in conjunction with a Swan manifold having a thermostatically controlled heat valve in the exhaust jacket. Under full throttle the inlet temperature is 108 deg. F. at 1,000 r.p.m., reaches a peak value of 120 deg. at 2,000 r.p.m. and then drops to 112 deg. At one-quarter load the inlet temperature is 202 deg. at 1,000 r.p.m. and drops to 140 deg. at 3,000 r.p.m. The fork of the inlet manifold is located in the stream of warm air from the cylinder heads, which is said to be an effective means of keeping the manifold from loading. This also reduces the size of inlet jacket required and makes it possible to operate without any exhaust heat at all in a great many cases.

An oil-temperature regulator manufactured by the Harrison Radiator Company is an integral part of the engine. All lubricating oil has to pass through this device before it reaches the main and connecting-rod bearings. In actual service the oil is maintained at a temperature of about 180 deg. One advantage resulting from the use of

es for Commercial n and Marks

this cooler is that it is not necessary to use so heavy an oil as would otherwise be required, thereby cutting down the friction losses. A by-pass is provided which makes it unnecessary for the oil to pass through the cooler when it is cold and viscous, thereby preventing injury to the cooler from too high oil pressure.

The camshaft is provided with steel-backed, babbitt-lined bearings lubricated from the main header under pressure. The flywheel housing is separate from the crankcase. This makes it easy to supply different housings to meet different requirements.

The crankcase is an iron casting and is well ribbed for the utmost rigidity. All oil ducts are drilled in the case and no extraneous oil lines are used. The crankcase breather and oil filler are combined in such a way that the oil supply in the engine can be replenished from either side. Crankcase ventilation is accomplished by drawing air from the crankcase through a special funnel arrangement.

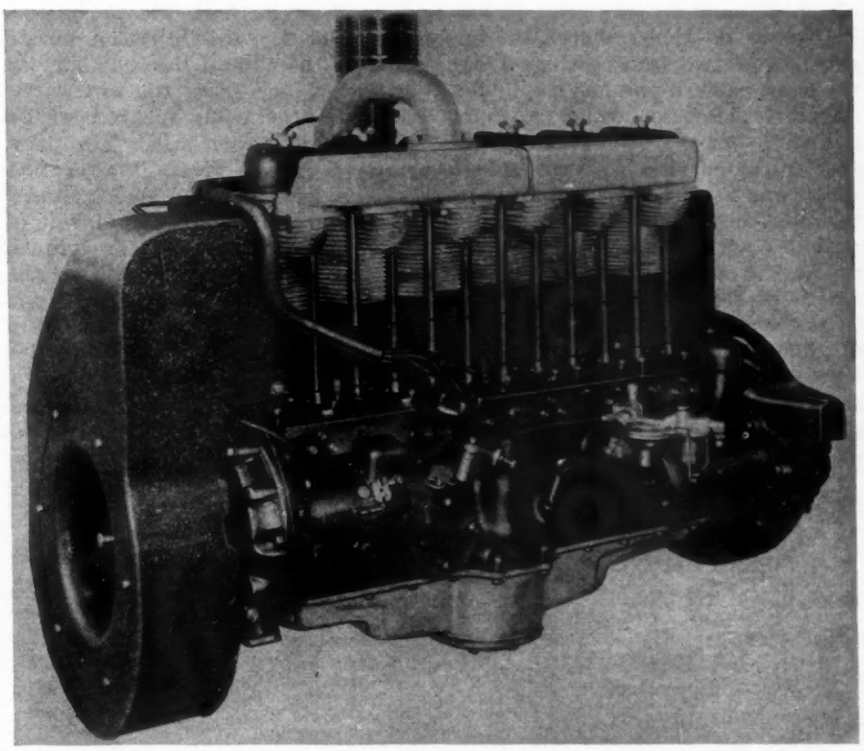
Lubrication of the valve mechanism, which is enclosed in easily removable covers on top of the cylinder heads, is effected by direct force feed from the main oil lines. Oil is led through conduits to the individual cylinder heads, and through drill holes in the head casting to the valve-rocker pins and bushings. The overflow from these bushings maintains on oil fog in the valve housings which lubricates the valve stems. Excess oil returns from the valve chambers to the crankcase through the valve-lifter rod tubes. There are ball-and-socket joints at both ends of the valve-lifter rods, which eliminates the need for bearings for these rods and leaves clearance all around them through which the oil may return. An hydraulic type of valve clearance compensator is used which takes up all clearance in the mechanism under all conditions, thus promoting quiet operation.

Front-end drive is by means of a non-metallic silent gear. The crankshaft is provided with twelve counterweights and is fully balanced. Lubrication of crankpin bearings is through holes drilled in the crankshaft. The outlet ends of these holes at the crankpins are radial, which tends to cause the oil to flow equally to both ends of the bearings. Main bearings are of steel-backed, babbitt-lined type; crankpin bearings are of lead bronze.

Pistons are made of aluminum alloy and are provided with three ⅛-in. compression rings and one 3/16-in. Perfect Circle oil scraper ring, all located above the piston pin.

The engine is so designed that there is ample room for a frame cross member between the fan housing and the oil pan. A ball check valve is provided in the oil-return hole in the cap of the rear main bearing, so that oil will not run out of the rear bearing when the car is ascending a steep grade. Accessories particularly sensitive to heat are located on the "cold" side of the engine. A heavy gasket of asbestos composition is placed between the gasoline pump and the engine, for purposes of heat insulation, and the exhaust manifold is made with an expansion joint at the middle of its length to prevent cylinder distortion due to excessive manifold expansion.

A complete line of air-cooled engines similar in general design to the models described in the foregoing is under development, with from four to 12 cylinders and with piston displacements ranging from 48 to 754 cu. in.



The new Doman & Marks air-cooled engine designed for truck, tractor and other heavy duty work, showing cylinders with air-cooling side-duct removed

Effect of Turbulence Studied

Experimental investigation of influence of nozzle location indicates side position will give best results

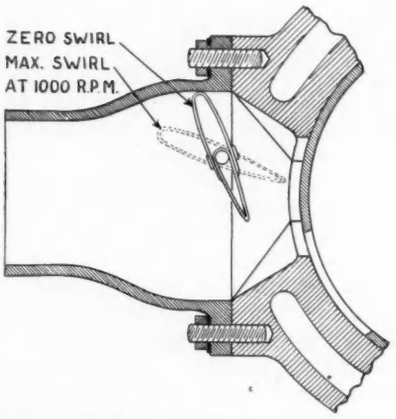


Fig. 1—Vane in inlet port to control swirl

C. FAYETTE TAYLOR and Myron S. Huckle of the Massachusetts Institute of Technology presented at the National Oil and Gas Power meeting in Atlantic City a paper on "A Single-Sleeve-Valve Research Engine and Preliminary Results from Compression-Ignition Tests." The crankcase of the research engine consists of two iron castings from the same pattern and has a cylinder adapter plate to which various cylinders can be secured. In the tests reported on a 6 by 8-in. cylinder was used. The crankshaft is mounted on ball bearings and is provided with crankarm extensions to which counterweights may be fastened. There are two camshafts in the crankcase, one on each side of the cylinder, which are driven from the crankshaft by silent chains, one at one-half crankshaft speed, for the operation of the injection pump, the other at twice crankshaft speed, for the operation of the valve sleeve.

The connecting rod, which was made from a Wright engine rod, is in two sections screwed together so that the center-to-center distance can be varied. A key was provided to assure accurate alignment of the two bearings after adjustment. Three cast iron cylinder heads were used in the tests, each providing a cylindrical combustion chamber coaxial with the engine cylinder, with length-diameter ratios of ½, 1 and 2 respectively. The chamber volume in all cases was such as to give a compression ratio of 14 to 1. Two locations were provided for the injection nozzle, one on the axis of the chamber, the other ¼ in. from the circumference, the fuel being sprayed parallel to the axis in each case. Two packing rings are fitted into grooves at the lower end of each cylinder head and bear against the inside of the valve sleeve. They are pinned so their ends cannot overlap the ports in the sleeve. The two rings on the aluminum-alloy piston (from a Wright aircraft engine) are pinned for the same reason.

The sleeve was made of seamless steel tubing and cyanide-hardened both inside and outside. One of the ports in the sleeve acts alternately as exhaust and inlet port, so that four sleeve ports are able to serve the three inlet and two exhaust ports in the cylinder wall. The ratio of the combined area of the three inlet ports to the piston displacement is slightly larger than the ratio of the maximum inlet-valve opening to piston displacement in the Pratt & Whitney 1690 cu. in. Hornet engine. Inlet ports open 10 deg. B.T.C. and close 45 deg. A.B.C.; exhaust ports open 45 deg. B.B.C. and close 10 deg. A.T.C. A separate supply pipe leads from the pulsation chamber to each inlet port, and approaches the cylinder radially, so that no initial swirl can be imparted to the incoming air. A movable vane is provided in each port for the purpose of controlling the direction of the air entering the cylinder. (Fig. 1). The shafts of the three vanes are interconnected and there is a position indicator on

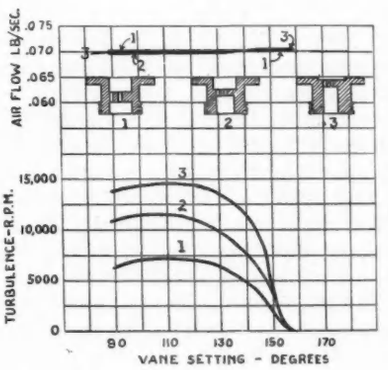


Fig. 3—Variation of turbulence with vane setting for the three types of combustion chamber

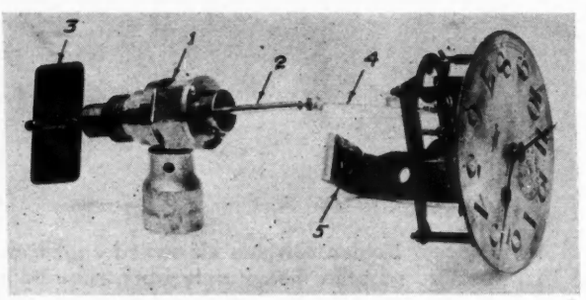


Fig. 2—Anemometer used to measure rapidity of air swirl

...in Sleeve Valve Diesel

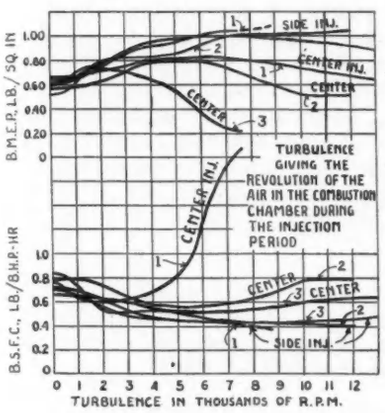


Fig. 4—Effect of turbulence on fuel consumption and b.m.e.p.

one of the shafts. The exhaust ports discharge into a water-cooled pipe leading to the laboratory exhaust system in which an underpressure of 3 in. of water column is maintained by means of an exhaust fan. The sleeve has a vertical stroke of 3 in. and a circumferential travel of 2¼ in.; it is balanced by a counterweight on the crank arm.

Injection was by a Bosch pump of 10 mm. bore and stroke each, and an N. A. C. A. nozzle was used, with 0.020-in. orifice and an orifice length/diameter ratio of 4. The nozzle was connected to the pump through a steel tube of ¼-in. outside and 1/16-in. inside diameter, 33 in. long. A photograph of the spray was taken with the M.I.T. spray photography apparatus when fuel was injected into nitrogen under a pressure of 125 lb. per sq. in., which has about the same density as the air in the engine cylinder at the time of injection. From this photograph drawings were made showing how the spray fills the combustion chambers 20 crankshaft degrees after the beginning of injection, effects of turbulence and combustion being neglected. Power and fuel consumption measurements were made with the usual equipment. The injection-advance angle was determined by means of a neon-light stroboscope (discharge into the atmosphere), and maximum cylinder and fuel-line pressures were measured by the N. A. C. A. maximum-pressure indicator.

The angular velocity of the air in the cylinder for various positions of the inlet vanes was measured while the engine was being motored by the dynamometer, by means of a special anemometer (Fig. 2). This instrument comprises a bronze shell which carries a light steel shaft on two ball bearings. A paddle of different shape must be fitted to the shaft for every design of combustion chamber. The paddle width is slightly less than the chamber diameter, and only the upper half of each chamber is swept by the blade. Clockwork is fitted to the upper end of the paddle shaft to act as a revolution counter. The speed of the paddle when motoring probably does not represent the average rate of swirl when the engine is operating, but does furnish a convenient method of specifying the degree of swirl used for any particular test.

Measurements showed that the volumetric efficiency, while virtually independent of the turbulence control vanes, varied from 86 per cent for an air/fuel ratio of 50, to 82 per cent for an air/fuel ratio of 14. (Probably on account of the increase in cylinder temperation with increase in load—Editor).

Fig. 3 shows the rate of swirl for various vane settings, as indicated by the swirl meter, with the engine being motored. It will be noted that the rate increases with a decrease in the diameter of the combustion chamber, as would be expected from considerations of air inertia.

Fig. 4 is a comparison of performance with the three different combustion chambers and two different nozzle positions, specific fuel consumptions and B.M.E.P.s being plotted against "turbulence r.p.m." With side injection the three different combustion chambers show practically equal performance for optimum turbulences, but with center injection the best performance is much lower than with side injection, and optimum performance corresponds to lower rates of swirl. Even with the long combustion chamber, where the spray fills the space fairly well, a high rate of swirl is necessary for best performance. The very poor performance with center injection in the wide, flat chamber was to be expected.

New Stock Steps Up Production

USERS of screw stock will be interested in an announcement by the Jones & Laughlin Steel Corp., Pittsburgh, Pa., that practical applications of its improved bessemer screw steel have shown production increases ranging from 11 per cent to 99 per cent. While this improved stock has just been offered to the trade, it has been in use, for purposes of performance observation, for a number of months. It is made in both S.A.E. 1112 and high-sulphur grades.

As described by the manufacturer, this is not a new stock, since its chemistry and physical properties are unchanged. Its free-cutting quality, however, through an advance in manufacturing method, has been improved radically.

The increases in production reported are ascribed to one or both of two factors. Either machining time is reduced, or tool life is extended, or both. Less energy is required in cutting and tools retain good cutting edges for longer periods. Machine time is reduced either through an increase in feed or speed, or both.

Czechoslovakia Has Wide Variety of Models

PRELIMINARY reports published by National Statistical office of Czechoslovakia give the numbers of different types of motor vehicles and cycles in that country as of Feb. 10, 1933, as follows: Passenger cars, 67,124; trucks, 28,198; buses, 3703; motorcycles, 43,363.

Scripps 12-Cylinder Marine Engine

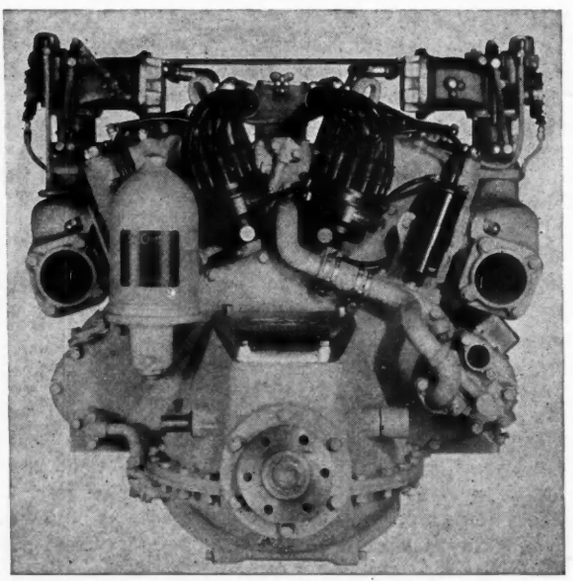
SCRIPPS MOTOR COMPANY, Detroit, Mich., has added a twelve-cylinder model to its line of marine engines, of which a rear view is shown herewith. This differs from most Vee engines in that it has L-head cylinders instead of having the valves in the head. This engine is available in two types, a high-speed developing 330 hp. at 3000 r.p.m., and a medium speed type developing 225 hp. at 1800 r.p.m. The piston displacement is the same for both, viz., 894 cu. in. The high-speed models weigh only 1500 lb. and the medium-speed models, 1700 lb.

Exhaust-valve seats of heat-resisting material are shrunk into the cylinder blocks. A 12-volt starting and ignition equipment is used, and four coils are provided. There are two spark plugs in each cylinder. Spark timing is entirely automatic. There are two camshafts in the engine, and liberal bearing surfaces are provided for these shafts and for the valve tappets. Valve tappets are submerged in oil to assure adequate lubrication and silent operation. Cylinder blocks are cast in pairs, to facilitate service and maintenance operations.

A two-part oil cooler is provided and its joints are said to be so arranged that leakage of oil into the water is prevented. Oil and water are separated by walls of 3/16 in. thickness. A large oil filler is located in the Vee of the engine. A large full-flow oil filter of the Purolator type, with two concentric metal filtering elements, continually filters all of the lubricating oil before it is carried to the bearing surfaces.

The mechanical all-metal fuel pump is self-priming and self-regulating, and has a fuel filter built in. An automatic packing gland at the rear end of the engine prevents leakage of lubricating oil at that point. The flywheel is completely enclosed and the crankshaft is provided with counterweights.

We understand that this engine is of such size and type as to meet the requirements of the 1933 rules governing powerplants of the Gold Cup class.



Rear view of Scripps Model 302 twelve-cylinder marine

Junkers L5 G Is More Powerful

AN improved model of the Junkers L5 aircraft engine, the L5 G, has recently been awarded a type certificate by the German Aircraft Testing Laboratory. By improvements in design it was found possible to increase the peak output with a compression ratio of 5.5 to 1 from 310 to 380 hp. and with a compression ratio of 7 to 1, from 360 to 425 hp. The normal outputs are now 340 hp. with a compression ratio of 5.5 and 360 hp. with a compression ratio of 7. An increase in crankshaft speed of 100 r.p.m. (to 1600 r.p.m.) was one of the factors which helped to increase the output. The engine is a six-cylinder vertical one with a bore of 160 and a stroke of 160 mm. (6.3 by 7.5 in.) The changes in design made improved the fuel economy and decreased the weight of the engine. The fuel consumption is given as 0.517 lb. per hp.-hr, at maximum and 0.495 lb. per hp.-hr. at normal output. The dry weight of the engine, inclusive of torsional vibration damper, compressed air distributor and fuel pump, but without propeller hub, is 765 lb. The L5 has been in production by Junkers for several years and powered the plane with which Capt. Koehl made his transatlantic flight in 1929.

First With Six Cylinders

The first six-cylinder automobile in the United States, and probably in the world, was built by the Automobile Company of America, Jersey City, N. J., and exhibited by it at the New York automobile show in 1901. *The Horseless Age* of November 6, 1901, has the following to say on the subject: "One carriage which is of considerable interest is the 35 horsepower Gasmobile racer of the Automobile Company of America. This is a tonneau designed closely upon French lines, but possessing some novel points. The engine is of six cylinders, placed horizontally in opposed sets of three across the carriage under the front bonnet."

No Brussels Show

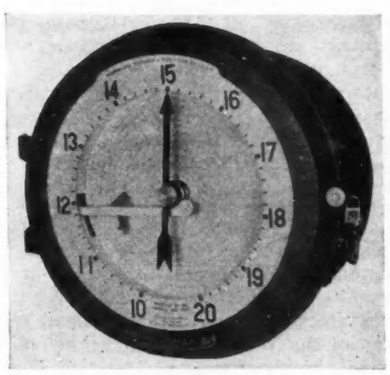
It has been decided by the Belgian Association of Automobile Manufacturers and the Belgian Association of Body Builders that the Brussels automobile show shall not be held this year. It is likely that an aircraft show will replace the automobile show.

NEW DEVELOPMENTS
Automotive Parts, Accessories and Production Tools

Will Show Fast Recorder

Vapocarb controlled atmosphere for Hump furnaces will be one of the headline attractions in the exhibit of the Leeds & Northrup Co., Philadelphia, Pa., at the A.S.S.T. Show. A Vapocarb-equipped Hump furnace has an atmosphere in which work is heated with no trace of scaling, pitting or decarburization. No packing is used. The heat-treater proceeds exactly as he would in any other Hump furnace. He has a definite record of the occurrence of the critical and of the distance between the critical and quench, just as he has always had. In addition, he has no surface imperfections to contend with.

A phenomenally fast recorder—the Speedomax—will also be shown. This machine records the temperature of moving billet as they leave a heating furnace. It records fluctuations in temperature along a rail as it passes through a rolling mill. It shows whether all portions of a pipe skelp are at the right temperature as the skelp leaves the furnace. It has many applications in inspection of machine parts as shown by the fact that it responds instantly, with a wide deflection, to the beam from a photoelectric cell.

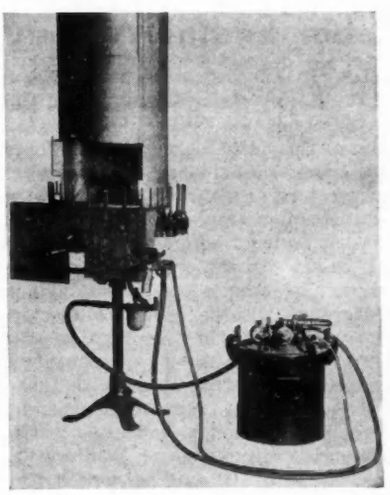


Leeds and Northrup show the Micromax at Chicago

Rotary Spray Machine Has Large Production

Manufacturers of small and medium sized articles will be interested in the Type YBA and YBB rotary spray finishing machines, recently placed on the market by the DeVilbiss Co., Toledo, Ohio. The machines are capable of an approximate production of 1000-3600 small, light weight articles per hour.

The machines will meet practically any requirement where the size, weight and location of a rotary machine are determining factors. In addition, they are ideal where intermittent or limited production does not justify a larger machine. The Type YBA and YBB are identical in design, except



The new DeVilbiss spray finishing machine

that the former is air motor driven while the latter is electrically driven.

Automatic loading and unloading mechanism may be supplied if desired. This may be coordinated with the conveyor system, thus eliminating an operator except for occasional inspection, or refilling the material tank. They can be equipped for either manual or automatic spray gun operation.

While a 24-in. turn-table is standard the machines may be equipped with 30, 36 or 42 in. tables. Likewise, 24 spindles are standard equipment, but anywhere from 18 to 48 spindles may be used, depending on the diameter of the turn-table.

Hydraulic Units Self Contained

A line of interchangeable, self-contained, hydraulic feed units has been placed on the market by the National Automatic Tool Co., Richmond, Ind. The six sizes in this line cover a range from 3½ to 16 hp. available for drill head drive while drilling capacity in mild steel ranges from five ⅜ in. holes to fourteen ⅝ in. holes. The range of feed in inches per minute is from 1-10 in.

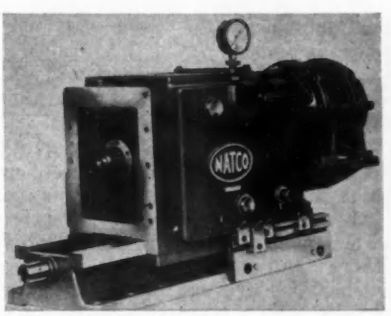
Units are arranged with a semi-automatic hydraulic feed, the operator starting the cycle by pressing a single pushbutton. A balanced valve of the load and fire type, mounted within the unit, working in connection with trip dogs, located on the right side of the unit base, control the movements of the unit after the cycle is started. The length of the rapid traverse and feed is adjusted by setting the valve trip dogs. The back or stop position is adjustable in the same manner. In case of an emergency the pressing of the pushbutton station will start the unit in rapid reverse. When the starting position is reached the unit will automatically stop.

Units are furnished as standard with the following cycle:

Rapid traverse forward, first feed, second feed, rapid reverse to the starting position and stop.

A jump feed may also be furnished at an additional charge if desired. It provides a second rapid traverse stroke, interdupting the feeding stroke and making the following cycles possible:

Rapid traverse forward, feed forward, rapid traverse forward, feed forward, rapid reverse to starting position and stop; or—Rapid traverse forward, first feed forward, rapid traverse forward, first feed forward, second feed forward, rapid reverse to the starting position and stop.



New Natco hydraulic feed unit

Motor drive ranges from 5 hp. at 1800 r.p.m. to 20 hp. at 1200 r.p.m. The size of the base ranges from 13½ x 35 in. to 24 x 70 in. Total weight with motor ranges from 1075 lb. for the small size to 3220 lb. for the largest.

Dealers Accept 5 to 15% Sliding Scale Used Car Mark-Down Instead of Flat 20%

NRA Decision on Price-Fixing in Retail Codes May Delay Approval—New Method of Computing Used Car Average Prices Will Tend to Increase Allowances

WASHINGTON, D. C.—Final action on the motor vehicle retailing code may be delayed by uncertainty in NRA regarding price-fixing in the retail field. In considering the general retail code now before the Recovery Administration, it is known that considerable opposition has developed to its price-fixing provisions, some of General Johnson's economic and consumer advisors being against their inclusion. Inasmuch as the used car provisions of the dealers' code represent a form of price-fixing, the decision reached on this question in the general retail code may have an important bearing on the final form of the automobile retailing code.

A number of important changes in the dealers' code affecting its scope, used car provisions and other features, were made in preliminary conferences and presented at the public hearing on Sept. 18. "Motor Vehicle Retailing Trade" was substituted for "Automobile Retailing Industry" in the title and for "retailing and/or servicing and/or repairing" wherever this language appeared in the original code. One of the principal effects of this change apparently will be to remove the independent repair shop from the jurisdiction of the code.

The maximum hours exception for salaried employees, managers, etc., was changed to apply to those earning more than $30, instead of $25 as originally written. Another change provides that one greaser, one washer, one porter and one helper may be employed at a rate of not less than $13 weekly.

In revised code, the responsibility for publishing the used car price guides is placed on N.A.D.A. exclusively, the phrase which permitted this work to be delegated to other organizations having been deleted.

The method of arriving at quotations to be included in the used car guide also was modified in a manner that will raise the average prices materially. The code now reads that "there shall not be included in computing such average that 20 per cent of sales which represented the lowest sales of all actual sales reported in the previous period." This means that if 10 sales are reported on a given model, only the eight highest will be used in determining the average to go into the guide. New averages are to be published approximately at 60 day intervals.

The flat 20 per cent mark-down on used cars originally provided has been changed to a sliding scale basis which will increase materially the allow-

(*Turn to page 378, please*)

APEM Hearing Sept. 26

WASHINGTON, D. C.—Public hearing on the code of the Automotive Parts and Equipment Manufacturers, Inc., has been set for September 26.

NE

NRA Board Finds No Discrimination Against Union Labor Ending A. F. of L. Strike at Bower Plant

DETROIT—Effecting a settlement of the Bower strike in the record time for Detroit of slightly over four hours, the NRA Conciliation Board ruled that no evidence had been produced indicating discrimination against union employees in recent lay-offs. Agreement effected at the meeting called for the return to work of all regular employees. Reemployment preference will be given to men recently laid off when production warrants. Company union representatives were at the meeting along with Bower and A. F. of L. representatives, but were not called upon to testify, although willing to do so. William Collins, A. F. of L. said he would have a meeting with the strikers today and arrange to put the agreement into effect.

The dispute at the Bower plant was generally regarded as a highly important test case in this area.

A strike was called at this plant by the A. F. of L. in protest against alleged discrimination against union men in lay-offs occurring during August. Such discrimination was denied by S. A. Strickland, general manager of the Bower organization.

Employees of Bower Roller Bearing for some time have been members of a "Welfare Association" functioning recently more or less as a works council for employees. In competition with this "company union" the A. F. of L. has organized some of the workers in the plant.

Realizing the importance of the dispute as a test case both Mr. Strickland and William Collins of the A. F. of L. agreed to a conference before the new conciliation board. If the board had ruled in favor of the A. F. of L., it was felt that considerable advantage would accrue to that organization in its attempts to unionize the automotive industry. The ruling against them is considered as weakening the A. F. of L. position among automotive workers.

A. F. of L. Organizers Active in Detroit Area

Four Branches Established and Nine Meetings Called

DETROIT—The following union organization meetings were held here this week under the leadership of the American Federation of Labor:

Kelsey Hayes Wheel Company, Detroit, Sept. 16.

Plymouth Motor Car Company, Sept. 18.

Murray Corp. of America, Sept. 19.

Dodge Brothers Corp., Sept. 19.

Kelsey Hayes Wheel, Sept. 20.

Bohn Aluminum and Detroit Gear & Machine Company, Sept. 20.

Hupp Motor Car Corp., Sept. 21.

Federal Motor Truck, Ternstedt Mfg., Timken Axle, and Cadillac Motor Car Company, joint meeting Sept. 21.

Chrysler Sales Corporation, Sept. 21.

Four branches of the A. F. of L. Automobile Workers Union have been established in Detroit, including one in Hamtramck, one on the East and one on the West side. The main office is in the Hoffman Bldg. Particular progress is reported by the A. F. of L. in organizing so-called "foreign" labor, particularly the Polish element among automotive workers.

Jack Anderson of the A. F. of L. has been appointed special organizer for the Flint industrial enterprises.

Stanley Steam Motors Files $250,000 Application

CHICAGO—Stanley Steam Motors Corp. has filed a security registration statement under the Securities Act of 1933. The amount of the offering is $250,000. H. W. Gahagan is president and H. J. Gahagan is secretary-treasurer.

WS

Carlton Outlines APEM After-Market Policies

New Association Working in Close Cooperation With NSPA —No Action on MEMA Merger

DETROIT — "Members of APEM should regard NSPA as ..... the after market activity division of this association, to which activities they can elect whether or not they wish to subscribe, just as they can elect whether or not they wish to subscribe to the credit facilities which will be provided by APEM," C. C. Carlton, executive vice-president of Automotive Parts and Equipment Manufacturers, Inc., said in a statement of policy issued on Sept. 15.

Meanwhile what effect this policy will have on the proposed merger of the Motor & Equipment Manufacturers Association with APEM continues uncertain and it appears probable that no action will be taken by MEMA until its annual meeting in Chicago late in October just prior to the Automotive Service Industries Show. It is reported, however, that a

(*Turn to page 382, please*)

Loss of IHC Contract by Overland Reported

TOLEDO—Report of the loss of the International Harvester contract for making half-ton trucks by Willys-Overland to the Springfield, Ohio, Harvester plant will not affect the present operations here, according to officials. Production on a new order for 4500 trucks and 2000 engines begins Oct. 9. Approximately 17,000 trucks have been completed under the arrangement.

W. B. Stratton, chairman of the reorganization committee, said Willys-Overland had not made profit on the truck business, but had been able to meet overhead and other expenses.

He said plans are in making to replace truck business and indicated the change would not affect reorganization plans.

Sales in First Half of September Exceed Expectations; Output May Reach 195,000

Continued Retail Sales Activity Brings Definite Decline in New Car Inventories Without Important Increase in Stocks of Used Cars in Dealers' Hands

By Athel F. Denham
Field Editor, Automotive Industries

DETROIT—While the first half of September showed a definite decline in retail domestic new car deliveries, it has proved to be less than anticipated by several important manufacturers with the result that production estimates in several cases have been stepped up once more as predicted two weeks ago.

Rough estimates now place September total production in the neighborhood of 190,000 to 195,000 and retail domestic passenger car deliveries well in excess of 150,000. Of course, the latter part of the month may yet develop a sharp break in retail deliveries, but at present indications do not point to such a development. Plant shut downs by one or two companies toward the end of the month will to some extent be offset by resumed production in the Studebaker and Nash plants.

Packard has also resumed production on a good scale in the high priced field.

Used car stocks in the hands of dealers as of Sept. 1 are estimated as still close to the 200,000 mark, indicating that there has been little build up during the summer months in the way of such stocks. New car stocks showed a definite decline during August, particularly during the closing weeks.

Plymouth factory shipments for the week ending Sept. 9 totalled 7400 units—ten times more cars than were shipped during the same week of last year, according to an announcement by H. G. Moock, Plymouth general sales manager. Mr. Moock stated that in spite of heavy shipments the week's supply of new cars in transit and on dealers' show floors is the lowest for the year. Retail Plymouth sales reported by dealers for the week totalled 6019 units, a decrease from the previous week owing to the Labor Day holiday but a 267 per cent increase over the corresponding week of last year.

Pontiac national retail deliveries during the first 10 days of September exceeded deliveries in the corresponding period of 1932 by 1662 units. Retail sales for the year to date now exceed by 28,722 cars the number sold in the same period of last year.

Retail deliveries of Buick cars for the first 10 days of September were 182 per cent of the total for the corresponding period of last year.

Graham retail deliveries are holding close to July levels although slightly behind the peak reached in August.

Combined DeSoto Plymouth sales by DeSoto dealers last week totaled 2585, a slight increase over previous week. Shipments for week totaled 3104 units, a 3.1 per cent increase over previous week.

Following official announcement of new models on Sept. 7, Packard received 2680 orders for the new cars up to and including Sept. 11.

August Registrations Nearly Double 1932

Cars Gain 95% Over Last Year and Are Only 2% Under July

PHILADELPHIA — Estimates for August place registrations of new cars and trucks at 210,000 against 108,537 a year ago and 216,302 during July of this year. As compared with August, 1932, this represents a gain of 94 per cent, and a decline from July of this year of approximately 2.5 per cent.

New passenger car registrations for August amounted to 182,000 as compared with 93,457 a year ago and 185,660 in July of this year, according to estimates based on returns from 23 states.

An increase over August, 1932, of approximately 95 per cent is indicated by this estimate and a slight decrease of about 2 per cent from July of this year.

According to the partial returns so far received, Chevrolet maintains the lead with an estimated 53,000, Plymouth second with 41,000 and Ford third with 40,000 units. On this basis Chevrolet shows an increase of 123 per cent over August of last year, Plymouth a gain of 332 per cent and Ford a gain of approximately 30 per cent.

On the basis of returns from 29 states new truck registrations for August are estimated at 28,000 as compared with 15,081 a year ago and 30,642 during July of this year, a gain of 85 per cent over August, 1932, and a decline from July of about 9 per cent.

New Goodrich Tractor Tires

AKRON—Goodrich is now in production on two sizes of low pressure tires for farm tractors. The sizes are 11.25x24 and 6.00 x 16 in. and fit standard wheels of the rod spoke type.

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

Business in Brief

Retail trade last week continued to make a good showing, partly because the fear of higher prices stimulated buying. Sales were from 10 to 40 per cent above those a year ago. Wholesale business was also better. Industrial activity as a whole fell off somewhat, although several lines maintained the same level of operations as in the preceding week. Crops and harvesting in most sections are progressing satisfactorily, although delay has been occasioned in some parts by heavy rain fall.

Freight Loadings Drop

Railway freight loadings during the week ended September 9 totaled 571,387 cars, which marks a decrease, due to the observance of Labor Day, of 95,265 cars below those in the preceding week, an increase of 69,850 cars above those a year ago, and a decrease of 96,363 cars below those two years ago.

Retail Sales Improve

Sales of one large mail order house during the four weeks ended September 10 totaled $22,584,264, which marks an increase of 18 per cent above those in the corresponding period last year.

The Federal Reserve Board's adjusted index of department store sales for August stood at 75, as against 71 for July and 68 for June. The August increase in sales was considerably more than the usual seasonal advance.

Food Prices Rise

During the fortnight ended August 29 average retail food prices in the United States advanced 0.3 per cent, according to the Department of Labor. In no case were the increases as great as in the month ended August 15.

Power Production Increases

Production of electricity by the electric light and power industry in the United States during the week ended September 9 was 11.1 per cent above that a year ago.

Fisher's Index

Professor Fisher's index of wholesale commodity prices for the week ended September 16 stood at 71.1, as against 70.9 the week before and 70.8 two weeks before.

Federal Reserve Statement

The consolidated statement of the Federal Reserve banks for the week ended September 13 showed a decrease of $12,000,000 in holdings of discounted bills and an increase of $37,000,000 in holdings of Government securities. Holdings of bills bought on the open market remained unchanged. The reserve ratio on September 13 was 66.8 per cent, as against 67.0 per cent a week earlier and 67.5 per cent two weeks earlier.

Tire Shipments and Output Lower in July

NEW YORK—July shipments of pneumatic casings decreased 12.8 per cent below June but were 128.7 per cent above July, 1932, according to the Rubber Manufacturers Association, Inc.

Production of pneumatic casings for July also decreased 6.3 per cent under June but was 58.0 per cent above July, 1932. Pneumatic casings in the hands of manufacturers increased 3.5 per cent in July and were 10.3 per cent above stocks July 31, 1932.

The actual figures are as follows:

PNEUMATIC CASINGS

	Shipments	Production	Inventory
July, 1933	5,497,191	5,713,626	6,844,006
June, 1933	6,305,454	6,099,924	6,614,9.0
July, 1932	2,404,095	3,616,829	6,202,856

New FWD Rail Car

CLINTONVILLE, WIS.—A 35-passenger rail car, said to be capable of speeds in excess of 70 m.p.h., has been developed by the Four Wheel Drive Auto Co. It is powered with two 86-hp. engines, each of which drives one of the two axles through three speed transmissions, thus providing drive on all four wheels. The overall dimensions are 30 ft. by 7 ft. 7 in. The controls of the two transmissions are synchronized but provision is made so that drive to either axle may be cut out.

G.M. Stockholders Number 355,789

NEW YORK—The total number of General Motors common and preferred stockholders for the third quarter of 1933 was 355,789 compared with 366,084 for the second quarter of 1933 and with 364,401 for the third quarter of 1932.

There were 337,820 holders of common stock and the balance of 17,969 represents holders of preferred stock. These figures compare with 348,224 common stockholders and 17,860 preferred for the second quarter of 1933.

Young Reports Gains

RACINE, WIS.—F. M. Young, president of Young Radiator Co., reports that its factory payroll for August was double the totals in April and May, respectively. The company is now regularly employing as many men as in 1929. September output will be considerably in excess of August.

Gutchess Goes Abroad

TOLEDO—Allen DeVilbiss Gutchess, president of The DeVilbiss Co., left Sept. 15 for a month's business trip in England and France. While in London, Mr. Gutchess will attend the annual meeting of the Aerograph Co., Ltd., the DeVilbiss English affiliate.

Rim Inspections Quadruple Total for August, 1932

CLEVELAND—August rim inspections were four times as large as in the same month last year, the totals reported by the Tire and Rim Association being 960,795 and 233,033. In the first eight months, the total is 6,356,456 against 4,676,620 in the corresponding period in 1932.

Cahill and Crossett Named

RICHMOND, IND.—National Automatic Tool Co. has appointed Walter F. Cahill and R. J. Crossett as sales representatives in the Detroit and Chicago areas respectively. Mr. Cahill will be associated with E. A. Harper, manager of the Detroit sales office, while Mr. Crossett will be associated with Dave L. Riley, manager of the Chicago sales office.

No More Statistics for Chevrolet's Field Men

New Small Ring Binder Takes Place of Bulky Brief Cases in Klingler's New Program

DETROIT — All the information Chevrolet field men are now required to carry is now contained in a small binder with one inch rings. The bulky portfolios covering instructions, information and report requirements, which many of them had accumulated, were all thrown in the wastebasket at a dramatic series of staff meetings which H. J. Klingler, vice-president in charge of sales, conducted recently in various key centers.

"Most of the men here today have been with us for a long time," Mr. Klingler said, "and perhaps you think this is just another factory sales meeting. If you do you're going to get a shock. Instead of discussing quotas, used cars and dealer's financial conditions, we are going to talk about retail selling.

"It doesn't make any difference how good we are as a manufacturing organization or how many retail outlets we have, if those outlets can't move our products into the hands of the ultimate consumer. Therefore, as I see it our job—and I say 'OUR' advisedly because I share your responsibility—is to not only continue to sell cars to our dealers but what is more important to show them how to sell more Chevrolet cars and trucks to the public.

"To do that means that you men in the field are going to quit being statisticians. You're going to stop worrying about whether John Jones has ten used cars over 60 days old. John has always been a pretty good dealer. He's made money, and regardless of the fact that somebody's third cousin has figured out that John's operations are all wrong, he seems to be doing a fairly successful job.

"And another thing you are going to do is to stop carrying around a lot of data that you or nobody else ever uses."

The destruction of the contents of many a fat portofolio followed.

Brockway Names Hilton

PHILADELPHIA — Gabe Hilton has been named sales manager of the Brockway Motor Truck Co. branch in this city. Mr. Hilton for the past ten years has covered the eastern territory as sales manager for the Timken-Detroit Axle Co.

Hercules First Half Report

CANTON, OHIO—Hercules Motor Corp. reports net loss after depreciation, taxes and other charges of $68,613 for the six months ended June 30, against $52,712 loss in the first six months of last year. For the quarter ended June 30 net loss was $24,638 against $43,975 in the preceding quarter and $14,145 in the corresponding 1932 quarter.

Registrations Drop 5% in First 6 Mos.

Gas Taxes and Gallonage Also Show Small Declines

NEW YORK—Gross revenue from state gasoline taxes in the first six months of 1933 amounted to $259,336,280, or $8,574,040 less than the $267,910,320 gross of the first half of 1932, it is estimated by the American Petroleum Industries Committee.

Taxed gallonage declined four per cent and gross revenues three per cent, the Committee finds, gross collections for the first half indicating that gross revenue for the full year will be approximately $520,000,000, or only $7,000,000 above the net revenue of $513,047,239 in 1932.

Comparable reports from 37 states on motor vehicle registrations, obtained by the Institute's Department of Statistics, show that on July 1, 1933, the nation's motor vehicle population was 15,535,928 against 16,369,463 on July 1, 1932, a decline of 833,535 vehicles, or 5.1 per cent. The 1933 figure is influenced by many factors, however, including postponement of registration dates, leniency in enforcing registration laws, and laxity in prohibiting the operation of vehicles with old license plates or none at all.

Canadian Carriers Report on Results

Receipts Amount to $16,033,100 in '32

The latest annual survey of motor vehicle transportation in Canada shows that all common carriers of the Dominion secured total receipts of $16,033,100, the number of motor transport enterprises in the country being 1463. These concerns had 3251 full-time employees and paid out $3,921,200 in salaries and wages. There were 957 operators of coach and transport vehicles for hire in the province of Ontario and these reported receipts totalling $11,078,700. Eighty-four concerns in British Columbia reported receipts of $1,682,200 while 110 in the province of Quebec reported $1,632,200 for the year.

Motor freight trucking by public carriers in Canada brought a total revenue of $9,383,600 and this represented only 2.72 per cent of the revenue secured by the steam railways from freight and express. It is pointed out, however, that these statistics do not cover the operations of private motor carriers, such as the fleets of trucks in inter-city traffic owned by mercantile companies for their own use.

Public motor passenger carriers of Canada had receipts of $6,649,500, which was 9.95 per cent of the passenger receipts of the steam railways during the year. There were 146 concerns engaged in inter-city coach services while 38 enterprises operated local bus lines in the Dominion.

Figures are given regarding the operating expenses of 717 common motor carriers in Canada. These firms, for which the items are available, show total operating expenditures of $10,614,400 as compared with receipts for these firms of $13,352,500. The figures included 396 inter-city motor freight enterprises which revealed operating expenses of $5,218,200, as compared with $6,330,500 receipts. Eighty-three inter-city coach lines showed operating expenses of $4,523,600 compared with receipts of $5,537,400. Local bus services to the number of 22 gave $397,800 as operating expenses and $680,600 as receipts.

The survey points out that the table for operating expenses did not include all operators, that little allowance for depreciation of equipment was indicated. Operating expenses were given by practically all large public carrier companies and included salaries, wages, rent, taxes, insurance, administration, office and overhead, such as maintenance, delivery, stationery, supplies, light, heat and power.

Parks With Wilding Pictures

DETROIT—Robert M. Parks, formerly director of advertising of the Plymouth Motor Corp., has joined Wilding Picture Productions, Inc.

Dealers Accept Sliding Scale on Used Cars

(*Continued from page 374*)

ances to buyers. On cars of the current series or the preceding series, the minimum mark-down is to be 5 per cent. On the next earlier series, the mark-down is to be not less than 10 per cent and on all other models a minimum of 15 per cent.

Another change eliminated all commercial vehicles with a capacity of more than 1½ tons from the purview of the code. The section barring gratuities, etc., also was modified so that free service under the warranty would not be construed as a violation. Sections also were added making unethical advertising unfair competition.

The provision requiring that only the cost of freight be charged in arriving at the delivered price, was attacked by dealer groups from the far west. They contended that this provision would lead to confusion due to the wide variation between transportation cost by rail and by water, and also that it was unfair to them because the laid-down cost of the car was their real cost. They pointed out that the freight often approximated a third of the net factory cost and that they should not be required to make this investment without a mark-up. To emphasize the importance of this factor, they also brought out that because of their distance from producing centers it was necessary for them to carry larger inventories.

The western dealers also urged strongly that the anti-bootlegging provisions of the code be approved. The situation has become particularly acute there recently due to the growing practice of driving bootleg cars into Western markets and using the cut in transportation cost as a price reduction. It was asserted that if the practice was not stopped that within six monhs 30 per cent of the dealers on the West Coast would be put out of business. To show the extent of the practice, figures were presented indicating that of 443 new cars registered in Los Angeles in the first eleven days of September, 92 were registered through unauthorized dealers.

Dr. Lawrence H. Seltzer, representing labor, asked for the elimination of the "merit" clause, reduction in the maximum work hours to 40, with 48 hrs. in an emergency, except for salesmen with all time during which an employee is available for work to be paid for. He asked that overtime be paid at time and a half. He also recommended that only one washer, greaser, or helper be permitted per dealer at not less than 80 per cent of minimum wage. In large dealership, 10 per cent of the employees might be classified and paid in this manner, however. In his opinion, the minimum salesmen's draw should be increased by $2.50 per week in each population group and salesmen should be required to work not more than 40 hr. weekly to qualify for this draw. Equal representation for labor on the control committees was another recommendation of Dr. Seltzer's.

The Consumer Board confined itself to a recommendation that the speedometers on new cars show all the miles which the car had actually been driven.

Representatives of the Chicago Auto Trade Association led by its president, Lafayette Markle, requested numerous revisions. They asked that the code cover automotive merchandising so that it would include independent shops. They also wanted it made unfair practice for a manufacturer to require purchase of models not desired as a condition necessary to get cars to fill orders or sales already in hand; for a manufacturer to ship cars on consignment in excess of immediate or near future needs of territory; for a manufacturer to liquidate excess stocks except through authorized channels; for a manufacturer to overcrowd a territory with dealers. The Chicago group also objected to limiting the publication of used car guides to the N.A.D.A. and asked for the restoration of the flat 20 per cent mark-down on used cars.

The exclusive publication rights on used car guides vested in the N.A.D.A. in the revised code was also objected to by Thomas J. Hay and William McKinley of the National Used Car Market Report and by letter by the Thomas Publishing Co. of Seattle.

Numerous used car dealers objected to the inclusion of their business under the code stating that the N.A.D.A. was not representative of them, that they had been refused participation in framing the code and that the code would put them out of business. They asserted that there were 15,000 used car dealers in the country and that their investment ran into hundreds of millions. They asked for a separate code adapted to their needs and said that steps were being taken to file one.

H. A. Wolfington objected to the clause limiting discounts on parts and accessories to authorized dealers and service stations. In response to a question, President Vesper said that the intention of this clause was not to bar discounts to legitimate independent shops. He did not indicate clearly, however, how the distinction was to be made in practice.

August Output Tops July and Exceeds Last Year by 157%—Eight Months Gain Is 36%

Production—U. S. and Canada

	Cars	Trucks	Total
August, 1933	200,063	42,496	242,559
July, 1933	200,345	39,283	239,628
August, 1932	79,073	15,319	94,392
Eight months, 1933	1,282,501	245,053	1,527,559
Eight months, 1932	945,341	176,783	1,122,124
Twelve months, 1932	1,186,209	245,285	1,431,494

Per Cent Changes

August/July, 1933	0%	+8%	+1%
Aug., '33/Aug., '32	+153	+177	+157
8 Mos. 1933/1932	+36	+39	+36
8 Mos. 1933/12 Mos. 1932	+8	0	+7

Tom Glasgow an NRA Deputy Administrator

WASHINGTON, D. C.—Tom Glasgow, Charlotte, N. C., jobber and long prominent in automotive jobbing circles as a member of the Motor and Equipment Wholesalers Association, has been appointed by Gen. Hugh Johnson as NRA Deputy Administrator.

Announcement of the appointment of Mr. Glasgow contains the further information that he has been placed in charge of the lumber industry's code. His headquarters are in the Commerce Building at Washington.

Evans in the Black

DETROIT — Evans Products Co., has reported net earnings of $7,682 after all charges, for the first six months of this year, compared with net loss of $90,065 for the corresponding period last year.

New GM Parts Set-Up Widens Distribution

Chevrolet and B-O-P Dealers Get Full Discount on Parts for All Four Lines of Cars

DETROIT—No direct changes in merchandising and distribution policies for either Chevrolet or B-O-P parts are involved in the consolidations of parts warehouses reported in Sept. 16 *Automotive Industries*. While the move involves re-location of some warehouse points, particularly for B-O-P parts, the net effect, as far as distributional set-up is concerned, is relatively slight. There will be, of course, some increase in the total number of warehouses carrying B-O-P parts since the Chevrolet warehouses will in most cases be used for combined stocks.

Economies effected as the result of the move will include of course reduced building maintenance costs, insurance, and avoidance of duplication of help except in the merchandising end. As formerly each line of cars will have its own parts staff calling on dealers.

Under the new warehousing set-up any General Motors dealer may order parts for any B-O-P or Chevrolet car or truck direct from the warehouse at full dealer discounts, if desired, irrespective of lines handled. Cadillac parts stocks are not affected by the move, except in Great Falls, Montana, and Atlanta, where B-O-P has been handling distribution of Cadillac cars and parts, and where parts stocks will be combined with Chevrolet and B-O-P, such parts will be handled through the former set-up of factory branches. There is one Cadillac warehouse, of course, in Oakland, Cal.

Under the new set-up also, recognized independent garages would also have a ready centralized source of supply for B-O-P and Chevrolet car parts, should dealers handling these lines refuse to sell parts to them under the NADA code. Whether or not such a move is contemplated could not be ascertained for publication.

Chemical Group Sets Date for Code Meeting

NEW YORK—The Chemical Specialties Group Committee of the Motor and Equipment Manufacturers Association has issued notices to all manufacturers of automotive chemical specialties inviting them to a meeting to be held at the Stevens Hotel, Chicago, on Friday, Oct. 27, for the purpose of considering and acting upon a code of fair trade practices.

The committee feels that automotive chemical specialties manufacturers should subscribe to the major code prepared and recently submitted to Washington by Automotive Parts & Equipment Manufacturers, Inc., in cooperation with the NEMA and NSPA. For that reason the Automotive Chemical Specialties code will be supplemental to the APEM code and will have to do chiefly with unfair trade practices while the wage and hour provisions of the APEM code will be followed.

Largest Steel Buy in Budd History

PHILADELPHIA — Edward G. Budd Manufacturing Co. has just purchased the largest quantity of steel at one time for one customer in its history. The order, amounting to one million and one-quarter dollars, for immediate delivery, was divided among several of the largest steel companies.

Haynes on Detroit Conciliation Board

DETROIT—Constitution of the Detroit conciliation board was completed this week with the appointment of Abner E. Larned of the United States Department of Commerce, resident in Detroit, as permanent chairman. Members of the board include Frank X. Martel, president of the Detroit Federation of Labor, affiliated with the A. F. of L., Frederick J. Haynes, one-time chairman of the Board, Dodge Brothers Corp., and now vice-president, Gear Grinding Machine Company. Mr. Martel represents employees and Mr. Haynes employers in industry. Representing employees in wholesale trade is R. C. Naysmith, a clerk with T. B. Rayl & Company, while I. Himmelhock, vice-president of the department store by that name represents employers in that branch. Orla B. Taylor represents attorneys.

Mrs. Grace Thayer Krolik, representing consumers on the board is a prominent member of the Detroit Federation of Women's Clubs.

NRA Releases Code of Specialty Manufacturers

WASHINGTON, D. C.—The code of fair competition for the automotive specialty industry filed by the Automotive Electric Association covers electrical equipment, cable, carburetor, windshield cleaner, etc., manufacturers and wholesalers and dealers representing them. Maximum hours are set at 40, with a 48-hr. exception for 13 weeks per year, and minimum wages at 30 cents for women and 40 cents for men. Cost finding methods now employed by the industry are to be maintained. The code also calls for resale price maintenance.

Automotive Demand Buoys Steel Market

Business Rebound Held Necessary to Justify Present Price Levels

NEW YORK—Specifications by automotive consumers against contracts for the current quarter, especially so for sheets, furnish the one bright spot in the steel market this week. The long range outlook is hazy. Without an appreciable rebound from the shrinkage in new business, what advances have so far been listed would hardly suffice to keep most of the steel mills out of the red.

Majority sentiment among steel company sales executives leans toward pursuing a policy of giving demand full opportunity to reassert itself at prevailing prices, rather than of possibly retarding the building up of a healthy backlog by precipitately readjusting prices to the shrinkage in operating rates. They would much rather see the volume of business on their books restored to somewhere near what it was toward the end of July than higher prices.

There is some talk, however, of an impending upward revision in prices of heavy-rolled products: steel bars, shapes and plates, which so far have not been raised over depression levels. A 15 per cent increase in tonnage rates was voluntarily granted to their mill operatives by those sheet producers who have an agreement with the Amalgamated Association of Iron, Steel & Tin Workers. Under this agreement the rate of pay for this class of workers is fixed bimonthly on the basis of the average selling price of black sheets for 60 days previously. This showed a decline on Sept. 1, but the manufacturers deemed it only fair to bring wages of these agreement operatives up to those granted to other steel workers. While finishing mills are operating at a better rate than the primary mills, backlogs are not such as to make possible the planning ahead of operations for more than a few days.

Pig Iron—Automotive foundries are following the general tendency among melters to cover their requirements by the purchase of single carlots. Prices are well maintained, operation under the code having for the time being eliminated to a considerable extent any attempt by producers in one district to encroach upon the natural market of those in another.

Aluminum—Prices for virgin metal remain unchanged. The market for secondary metal is on the whole steady. Some remelters claim to be more than adequately supplied with scrap and have lowered their buying prices slightly.

Copper — Consuming demand continues light, but the decline of the dollar in terms of foreign exchanges has improved the export position of American producers and this, in turn, gives an undertone of strength to the domestic situation. Radical elements among the Western mine owners want the bars put up against any and all importations of foreign ores and concentrates and say that nothing short of a 15c. market price will be satisfactory to them.

Tin—Further advances in Sterling exchange caused the week's opening price for prompt Straits to advance ⅞c. to 47⅞c.

U.S.C.C. Asks for Vote on Transport Policies

Members to Voice Views on 13 Proposals Bearing on Motor Transportation

WASHINGTON, D. C. — Members of the Chamber of Commerce of the United States are being polled on eighteen proposals made by a Chamber committee and "Directed toward bringing about more equitable competitive conditions among the three principal forms of transportation—rail, water and highway." The proposals affecting highway transport follow:

Each state should put into effect the standard of the American Association of State Highway Officials as to size, weight and speed of vehicles.

Motor busses and other vehicles carrying passengers for hire should pay a special user tax in the form of a mileage tax, graduated according to seating capacity.

Motor trucks should pay a special user tax reflecting fairly the demands each makes upon the highways.

The gasoline tax should be kept down to a point not encouraging wholesale evasion.

The gasoline tax should be levied only by states.

States should enter into reciprocal agreements for issuance of special licenses at equitable rates to commercial vehicles out of their home states.

Intrastate motor carriers for hire, both common and contract, should be required to obtain permits to operate.

Intrastate motor carriers for hire, both common and contract, should, under regulation be required to file, post and adhere to rules that are just, reasonable and nondiscriminatory among shippers.

All commercial users of highways should be required to establish financial responsibility for public liability and all common carriers also for liability with respect to passengers and cargo.

Safety and fair conditions of competition require that hours of service of operators of commercial motor vehicles on highways should be reasonably limited by public authority.

There should be the same degree of regulation by Congress of interstate motor carriers as has been recommended to the states for intrastate carriers, as to permits to operate, rates, financial responsibility and hours of service.

The interstate regulatory authority should act as an appellate body, with provision for initial delegation of authority to boards of state regulatory bodies from states affected by each case that arises.

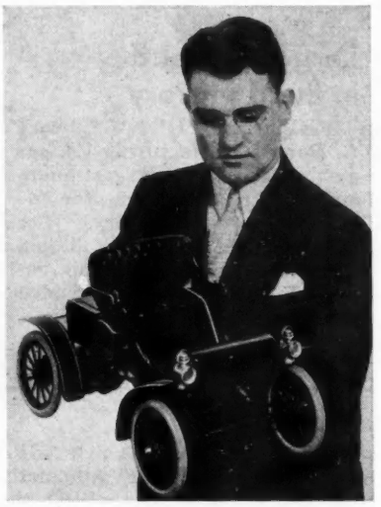
Section 500 of the Transportation Act of 1920 should be construed as a declaration by Congress of the importance to the public of the major forms of transportation, without preference for rail or water transportation over highway transportation.

Among the members of the committee drafting the proposals are A. J. Brosseau, president Mack Trucks, Inc., and J. Howard Pew, president Sun Oil Co.

A. S. Maxwell

NEW YORK—A. S. Maxwell, sales and advertising manager for J. H. Williams & Co., died at his home in Garden City, Long Island, N. Y., Saturday, Sept. 9. He had suffered for the past two years from a severe rheumatic condition which fatally affected the heart.

Mr. Maxwell had been connected with the Williams organization for many years and was widely known throughout the automotive, industrial, plumbing and pipe fields. He is survived by his widow, son and daughter.



Charles A. Freund, 20-year-old Chicago craftsman, required 1218 hours of painstaking work to complete this model which recently was placed in the General Motors Exhibit building at the Chicago Fair. Although only 18 inches long, the model is perfect in every detail, being an exact miniature copy of "Old Scout," the Oldsmobile which won the first coast-to-coast race held in America

Battery Code Awaits O.K.

NEW YORK—The National Battery Manufacturers' Association expects General Johnson to approve its code of fair competition this week. The association's code committee, consisting of E. D. Martin, Emark; C. O. Wanvig, Globe-Union; A. A. MacLean, USL; R. D. Mowry, Universal, and L. B. F. Raycroft, Exide, has been holding frequent meetings with Deputy Administrator Lea and Commissioner Parker reports that all the required details and revisions in connection with the presentation of the code have been completed.

Farm Income More— A Billion Larger

WASHINGTON, D. C.—Gross farm income will approximate $6,360,000,000 this year compared with $5,143,000,000 in 1932, assuming a continued improved demand for farm products the remainder of this year, according to a preliminary estimate by the Bureau of Agricultural Economics. The estimate is made up of $6,100,000,000 from the sale of farm products, plus at least $260,000,000 in rentals and benefit payments by the Agricultural Adjustment Administration.

New Ex-Cell-O Representatives

DETROIT—Ex-Cell-O Aircraft and Tool Corp. has announced the following appointments:

A. R. Sleath, Narberth, Pa., will represent Ex-Cell-O in the Philadelphia territory, handling the company's complete line of products, including those of the Continental Tool Works Division and Krueger-Wayne Tool Company Division. Mr. Sleath has been actively engaged in the machine tool industry for many years.

D. V. Chancellor has been appointed manufacturer's representative by Ex-Cell-O in the Southern Indiana and surrounding territory, with headquarters at Evansville, Ind. Mr. Chancellor will handle all products of the Continental Tool Div. and Krueger-Wayne Tool Div. in addition to those of Ex-Cello-O.

Farm Groups Protest Minimum Truck Rates

WASHINGTON, D. C.—A protest has been addressed to General Johnson, NRA Administrator, by the American Farm Bureau Federation, the National Grange and the Farmers Union requesting permission to be heard when the trucking code comes up for public hearing, and pointing out that the trucking requirements of agriculture are seasonal and that the limitation as to hours of labor by truckers hauling agricultural products should be flexible and should depend entirely on the necessities of the situation.

It also is insisted that the cost of rail transportation to the farmers is so exorbitant in proportion to the value of farm products that nothing should be done to take away the economy of motor transportation. Moreover, a vigorous statement is made in opposition to the alleged attempt by one association of for-hire truckers to have minimum truck rates fixed on for-hire trucking by means of the code which that association is to present.

G.M. of Canada Is 25 Years Old

TORONTO—The twenty-fifth anniversary of the incorporation of General Motors of Canada, Limited, was formally observed on Sept. 16. In 1907, R. S. McLaughlin, now president of General Motors of Canada Limited, built the first Canadian-made Buick-engined automobile under a 15-year contract with the Buick Motor Car Company of Michigan. The forerunner of General Motors of Canada Limited was the McLaughlin Carriage Company, which was founded by the late Robert McLaughlin, father of the president of Canadian General Motors.

Stewart-Warner Leases Two Idle Factories

CHICAGO—Two long idle plants of Stewart-Warner's subsidiary, Alemite Corp., have been leased, according to Joseph E. Otis, Jr., executive vice-president. The Chicago plant of Alemite, 2638 North Crawford Avenue, idle since operations were transferred to the Stewart-Warner plant more than a year ago has been leased to General Household Utilities and a Cleveland plant, idle for two years, also has been leased. Mr. Otis stated it will be the company's policy to place all real estate on an income basis either by lease or sale.

Lavine Close to Capacity

MILWAUKEE—Lavine Gear Co. reports business at least 50 per cent above 1932 levels. August was the best month in nearly two years and new orders have been coming this month in a volume insuring operations close to capacity for several months longer, according to Ben W. Twyman, vice-president and general manager.

Canadian Exports Up 259% in First Seven Months

WASHINGTON, D. C.—Canadian foreign trade in automobiles showed a marked upturn in the first seven months of the current year, as compared with the corresponding period of 1932, according to a report from Consul Damon C. Woods, Toronto, made public by the Commerce Department.

During the 1933 period, the report shows, exports amounted to 10,504 units and imports 1110 units as compared with 3204 and 633 units respectively in 1932. The increases amount to 259 per cent for exports and 73.8 per cent for imports.

Becker Named for C.F.R. Committee

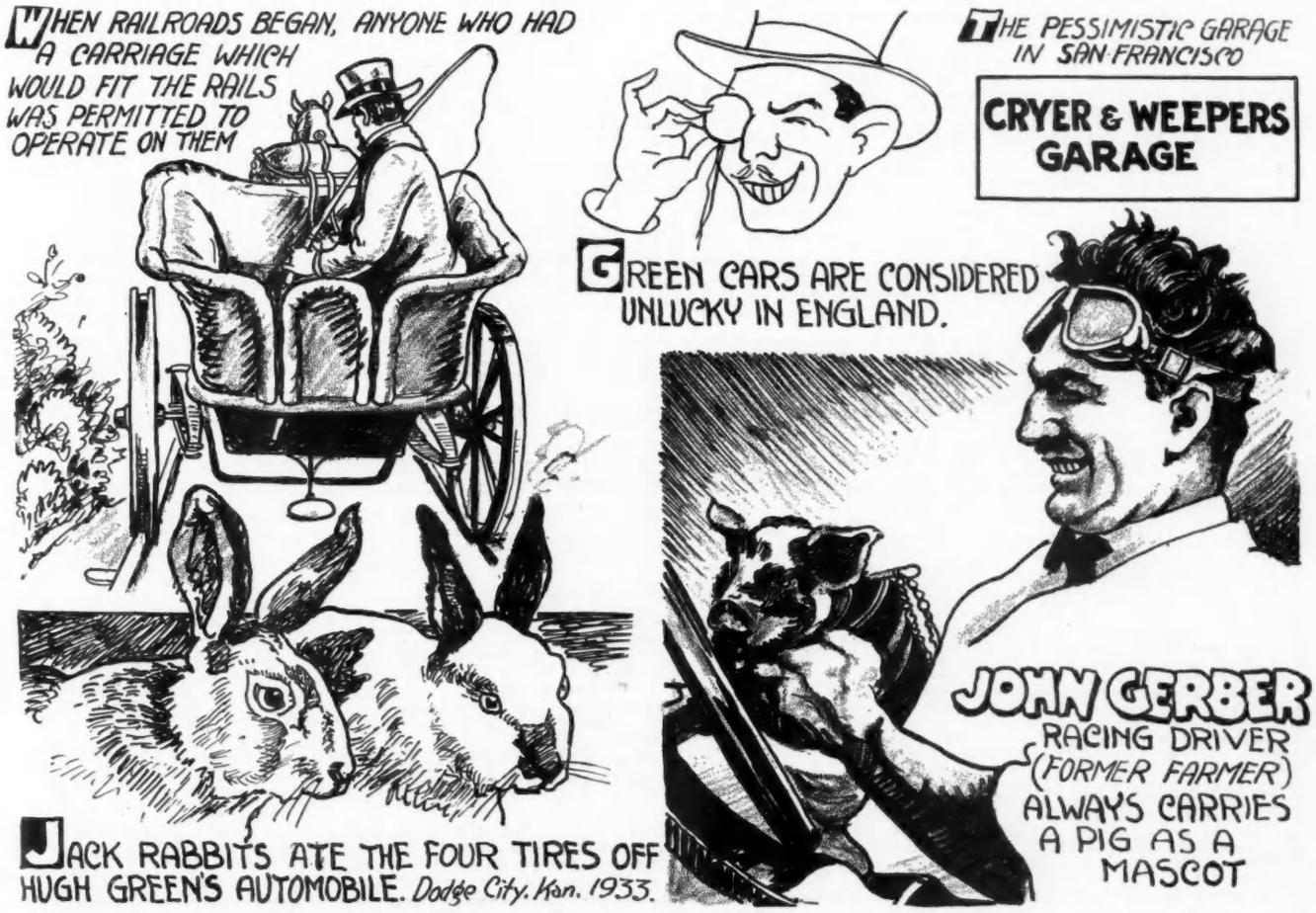
NEW YORK—Dr. A. E. Becker, Standard Oil Development Company, New York, has been appointed to membership on the Motor Fuel Research Committee of the American Petroleum Institute to take the place of Dr. C. O. Johns of the same company, who has resigned. Members of the committee represent the Institute on the Cooperative Fuel Research Committee, which includes as well representatives of the Society of Automotive Engineers, the National Automobile Chamber of Commerce, and the Bureau of Standards.

Fraser Heads Shell

ST. LOUIS—Appointment of Alexander Fraser as president of Shell Petroleum Corp. and its affiliated companies was announced today. Mr. Fraser has been vice-president of the company for several years.

Automotive Oddities—By Pete Keenan

Write us if you know an Oddity



Carlton Outlines APEM After-Market Policies

(*Continued from page 375*)

substantial majority of MEMA members are in favor of the merger with APEM only on the conditions that there shall be no domination by original equipment manufacturers and that the MEMA's activities in the after-market be continued by APEM.

Mr. Carlton's statement on policy follows:

Policy Statement of A. P. E. M.

"The policy of APEM as an association is to provide every facility within our power for each of our eight divisions. Approximately half of our members have indicated a major interest in other than original equipment. Therefore, it becomes the duty of the Board of Directors of APEM to see that equal service is rendered to all of the eight divisions.

"To our members whose major interest is in the 'after-market,' we give assurance that every sales promotional activity which has been afforded them by other associations in the past will be provided, not in competition with NSPA, but in full cooperation with NSPA.

"The fact that over four hundred members have already joined APEM is ample evidence of a demand for one strong, truly representative, exclusively manufacturers' association. The progress made by NSPA is evidence of a demand for an association of manufacturers and jobbers joined together for sales promotional activities in the 'after-market' field. NSPA directors and officials have cooperated with APEM in every possible manner and a large percentage of NSPA members have already joined APEM. We have a perfect understanding with the NSPA management to the end that NSPA is and shall continue to be 'in cooperation with APEM' and APEM is and shall continue to be in cooperation with NSPA.

"Manufacturers have a right to expect complete cooperation between associations for which they are paying, and they have a right to expect one manufacturers' association, with the privilege to elect whether or not they join NSPA for those activities which NSPA, in cooperation with APEM, shall provide. Manufacturers have a right to expect a complete elimination of petty jealousies and competition between associations in which they are paying dues. The managements of APEM and NSPA are in perfect accord, and members of APEM should regard NSPA as a separate, self-controlled association, independent in every particular as it has been in the past, but in reality the after market activity division of this association, to which activities they can elect whether or not they wish to subscribe, just as they can elect whether or not they wish to subscribe to the credit facilities which will be provided by APEM.

"Experience has taught plainly that the future management of the trade show cannot be divided without misunderstandings. As long as a trade show is demanded by manufacturers of this industry, such a show will be provided for the members of APEM, but only in cooperation with and not in competition with NSPA or any other trade association. It is the opinion of the Board of Directors of APEM that such show in 1934 should be conducted and managed by NSPA, in cooperation with APEM. This, of course, has no reference to the 1933 show, at which APEM will have headquarters at the Stevens Hotel.

In our invitation extended to the Board of Directors of MEMA about a month ago, proposing a merger with APEM, we stated that, if the membership of MEMA voted favorably, we would take over and operate the credit departments of MEMA to the best of our ability for the benefit of the membership, charging the cost to those members who subscribed for credit service.

"We suggested that the proposed merger be effective December 31st, 1933, but if MEMA should decide not to merge with us, we shall provide satisfactory credit service for our membership in a manner which the Board of Directors of APEM have had under consideration for some time, and which we are sure will meet with the complete approval of our membership, as we shall conduct a credit department with every possible facility for both manufacturers' and jobbers' credit service.

"In providing such credit facilities, in keeping with the policy of APEM in all matters, we shall not duplicate existing service if within our power to avoid same."

Dealers Get Temporary Exceptions to P.R.A.

WASHINGTON, D. C.—Through the efforts of N.A.D.A. President Vesper, temporary exceptions to the hours provision of the President's Reemployment Agreement have been granted to the automobile retailing industry. The exceptions follow:

"Factory or mechanical workers or artisans shall not be employed for more than 40 hours per week, averaged over an eight weeks' period; provided, however, that such employees shall not be employed for more than 48 hours in any week, nor more than eight hours in any one day. Factory or mechanical workers or artisans are defined as employees engaged in mechanical work for one-third or more of their working hours."

Joint Show a Sell-Out

DETROIT—All space for the joint Trade Show in Chicago, Oct. 30 to Nov. 4, has been sold out according to advices here. Indications are that another 25 to 33 per cent of floor space could easily have been disposed of to those desiring to be represented. To accommodate manufacturing members of the association sponsoring the show, etc., a number of exhibits have had to be ruled out including those of the trade press.

Lea, An Asst. Administrator

WASHINGTON, D. C.—Col. R. W. Lea, NRA deputy administrator in charge of automotive codes, has been named assistant administrator and will devote a large part of his time to developing plans for the administration of codes, according to information obtained by *Automotive Industries.*

Regional Agencies to Mediate Labor Fights

A. F. of L. Says There Is Room for No Other Union

WASHINGTON, D. C.—Disturbed by spreading labor troubles, General Johnson and Senator Wagner, chairman of the Labor Board, agreed this week on the creation of regional agencies of the National Labor Board to mediate differences between employers and employees.

Earlier in the week General Johnson revoked instructions previously given authorizing local NRA compliance boards to mediate labor difficulties. It is reported that this action was taken following a threat from Senator Wagner to resign as chairman of the Labor Board if its activities were to conflict with those of NRA compliance boards.

The interpretation of the mandatory labor provisions of the Recovery Act, which the NRA labor and industrial advisory boards are understood to have agreed upon, is reported to have been turned down by President Roosevelt on the ground that the language of the law is clear and needs no interpretation. Both labor and industrial boards were in agreement that the interpretation would facilitate code administration.

The American Federation of Labor in a statement by President Green served notice on all concern that there is no room in the United States for any other labor organization. The statement discussed the program for the Federation's convention on Oct. 2 and promised important "revelations." Efforts will be directed toward reducing hours and increasing wages as set up in approved codes. Collective bargaining also will be a major issue. An effort to create a powerful labor bloc also will be made, the statement saying that "the voice of labor will be heard on every vital public issue."

CALENDAR OF COMING EVENTS

SHOWS

National Metal Congress & Exposition, Detroit .....Oct. 2-6
Paris Automobile Salon, Paris ..Oct. 5-15
London Automobile Show, London. Oct. 12-21
Automotive Service Industries Show, M.E.M.A., N.S.P.A., M.E.W.A., Chicago .....Oct. 30-Nov 4
New York Automobile Show, Jan. 6-13, 1934
Automobile Show, Los Angeles, Jan. 6-14, 1934
Chicago Automobile Show, Jan. 27-Feb. 3, 1934

CONVENTIONS

National Metal Congress, Detroit .....Oct. 2-6
Accessory Branch—Natl. Hardware Association, Chicago .....Oct. 16-19
National Battery Manufacturers' Association, Sherman Hotel, Chicago, Oct. 19-21
International Power & Engineering Conference, New York City...Dec. 3-8

MEETINGS

American Gas Association, Chicago, Sept. 25-29
Natl. Safety Council, Chicago....Oct. 2-6
National Metal Congress, Detroit.Oct. 2-6
A.S.M.E. Meeting, Detroit, Wednesday, Oct. 4
American Petroleum Institute, Annual, Chicago .....Oct. 24-26
Commercial Motor and Transport Vehicle Exhibition, London, England .....Nov. 2-11
International Automobile Salon, Paris, France .....Oct. 5-16
International Automobile and Motorboat Show, London, England, Oct. 12-21